LIFETEC LT7049VT

MODEL

SERVICE MANUAL

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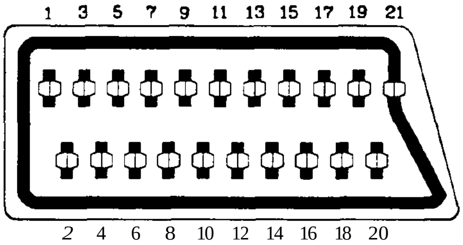
DO NOT CHANGE ANY MODULE UNLESS THE SET IS SWITCH OFF
The mains supply side of the switch mode power supply transformer is live.
Use an isolating transformer.
The receivers fulfill completely the safety requirements.

Safety precautions:
Servicing of this TV should only be carried out by a qualified person.
- Components marked with the warning symbol on the circuit diagram are critical for safety and must only be replaced with an identical component.
- Power resistor **and** fusable resistors **must be mounted in** an **identical manner to the original component.**
- When servicing this TV, check that the EHT does not exceed 26kV.

TV Set switched off:
Make short-circuit between HV-CRT clip and CRT ground layer.
Short C804 (150mF) before changing IC802 or other components in primary side of SMPS.

Measurements:
Voltage readings and oscilloscope traces are measured under following conditions.
Antenna signal 60dB from colourbar generator. (100% white, 75% colour saturation)
Brightness, contrast, colour set for a normal picture.
Mains supply, 220VAC, 50Hz.

PERI-TV SOCKET



SCART 1 (SC050)

1	Audio right output	0,5Vrms / 1 K
2	Audio right input	0.5Vrms/10K
3	Audio left output	0.5Vrms/1K
4	Ground AF	
5	Ground Blue	
6	Audio left input	**0.5Vrms/10K**
7	Blue input	0.7Vpp / 75ohm
8	AV switching input	0-12VDC/10K
9	Ground Green	
10	-	
11	Green input	0.7Vpp/75ohm
12	-	
13	Ground Red	
14	Ground Blanking	
15	Red input	**0.7Vpp/75ohm**
16	Blanking input	0-0.4VDC, 1-3VDC/75ohm
17	Ground CVS output	
18	Ground CVS input	
19	CVS output	1Vpp/75ohm
20	CVS input	1Vpp/75ohm
21	Ground	

SCART 2 (SC051)

1	Audio right output	O.SVrms / 1 K
2	Audio right input	0.5Vrms/10K
3	Audio left output	0.5Vrms/1K
4	Ground AF	
5	Ground Blue	
6	**Audio left input**	**0.5Vrms/10K**
7	Blue input	0.7Vpp / 75ohm
8	AV switching input	0-12VDC/10K
9	Ground Green	
10	**-**	
11	**-**	
12	**-**	
13	Ground Red	
14	Ground Blanking	
15	-	
16	-	
17	Ground CVS output	
18	Ground CVS input	
19	CVS output	IVpp/75ohm
20	CVS input	1Vpp/75ohm
21	Ground	

1. INTRODUCTION

11AK19 is a 90e and 1100 chassis capable of driving 20-21",24",25",28-29",32",33" tubes at appropriate currents.
The chassis is capable of working in both PAL and SECAM. The sound system is capable of giving 6watts RMS output into a load of 8ohms.
One 8 page simple TELETEXT, TOPTEXT and FASTEXT is provided.
The chassis is equipped with 21-pin scart connectors which can accept via scart the SVHS format from **VCRs so equipped.**

2. SMALL SIGNAL PART WITH TDA884X

The TDA8840/8842/8844 combine all small signal functions required for a colour TV receiver, except tuning.

2.1. Vision IF amplifier

The IF-amplifier contains 3 AC-coupled control stages with a total gain control range which is higher than 66dB.
The sensitivity of the circuit is comparable with that of modem IF-IC' s. The video signal is demodulated by means of a PLL carrier regenerator. This circuit contains a frequency detector and a phase detector. The AFC output is obtained by using the VCO control voltage of the PLL and can be read via the PC-bus. For fast search tuning systems the window **of** the AFC can be increased with a factor 3. The setting is realised with the AFW bit.
Depending on the type the AGC-detector operates on top-sync level (single standard versions) or on top sync and top white-level (multi standard versions). The demodulation polarity is switched via the rc-bus. The AGC detector time-constant capacitor is connected externally. This mainly because of the flexibility of the application. The time-constant of the AGC system during positive

modulation is rather long to avoid visible variations of the signal amplitude, Io improve me speed 01 me AUU system a circuit has been included which detects whether the AGC detector is activated every frame period. When during 3 frame periods no action is detected the speed of the system is increased. For signals without peak white information the system switches automatically to a gated black level AGC. Because a black level clamp pulse is required (or this way of operation the circuit will only switch to black level AGC in the internal mode.

The circuits contain a video identification circuit which is independent of the synchronisation circuit. Therefore search tuning is possible when the display section of the receiver is used as a monitor. The ident output is supplied to the tuning system via the PC-bus. The video ident circuit can be made less sensitive by means of the STM bit. This mode can be used during search tuning to avoid that the tuning system will stop at very weak input signals.

2.2. Video Switches

The circuits have two CVBS inputs (internal and external CVBS) and Y/C input. When the Y/C input **is** not required the Y input can **be** used as third CVBS input. The selection of the various sources is made via the PC-bus. The circuit has one CVBS output.

2.3. Sound Circuit

The sound band pass and trap filters have to be connected externally. The filtered intercarrier signal is fed to a limiter circuit and is demodulated by means of a PLL demodulator. This PLL circuit tunes itself automatically to the incoming carrier signal so that no adjustment is required.

The volume is controlled via the PC-bus. The deemphasis capacitor has to be connected externally. The non-controlled audio signal can be obtained from this pin. The FM demodulator can be muted via the PC-bus. This function can be used to switch-off the sound during a channel change so that high output peaks are prevented. The TDA8840/8842 contain an automatic volume levelling (AVL) circuit which automatically stabilises the audio output signal to a certain level which can be set by the viewer by means of the volume control. This function prevents big audio output fluctuations due to variations of the modulation depth of the transmitter. The AVL function can be activated via the PC-bus.

2.4. Synchronisation circuit

The sync seperator is preceded by a controlled amplifier which adjusts the sync pulse amplitude to a fixed level. These pulses are fed to the slicing stage which is operating at 50% of the amplitude. The separated sync pulses are fed to the first phase detector and to the coincidence detector. This coincidence detector is used to detect whether the line oscillator is synchronised and can also be used for transmitter identification. The first PLL has a very high statical steepness so that the phase of the picture is independent of the line frequency.

The horizontal output signal is generated by means of an oscillator which is running at twice the line frequency. Its frequency is divided by 2 to lock the first control loop to the incoming signal. The time-constant of the loop can be forced by the PC-bus (fast or slow). If required the 1C can select the time-constant depending on the noise content of the incoming video signal.

To protect the horizontal output transistor, the horizontal drive is immediately switched off when a power-on-reset is detected. The drive signal is switched-on again when the normal switch-on procedure is followed.

Via the PC-bus, adjustments can be made of the horizontal and vertical geometry. The vertical sawtooth generator drives the vertical output drive circuit which has a differential output current. For the EW drive a single ended current output is available.

When the horizontal scan is reduced to display 4 : 3 pictures on a 16 : 9 picture tube an accurate video blanking can be switched on to obtain well defined edges on the screen.

Overvoltage conditions can be detected via the EHT tracking pin.When an overvoKage condition is detected the horizontal output drive signal will be switched-off via the slow stop procedure but it is also possible that the drive is not switched-off and that just a protection indication is given in the PC-bus output byte. The choice is made via the input bit PRO.

2.5. Chroma and Luminance processing

The circuits contain a chroma bandpass and trap circuit. The filters are realised by means of gyrator circuits and they are automatically calibrated by comparing the tuning frequency with the X-tal frequency of the decoder.

The luminance delay line and the delay for the peaking circuit are also realised by means of gyrator circuits.

The centre frequency of the chroma bandpass filter is switchable via the PC-bus so that the performance can be optimised for "front-end" signals and external CVBS signals.

During SECAM reception the centre frequency of **the chroma trap is reduced to get a better suppression of the SECAM** carrier frequencies.

2.6. Colour Decoder

The decoder contains an alignment-free X-tal oscillator, a killer circuit and two colour difference demodulators. The 90° phase shift for the reference signal is made internally.

The 1C contains an automatic colour limiting (ACL) circuit which prevents that oversaturation occurs when signals with a high chroma-to-burst ratio are received. The ACL circuit is designed such that it only reduces the chroma signal and not the burst signal. This has the advantage that the colour sensitivity is not affected by this function.

The base-band delay line is integrated in the PAL/SECAM 1C' s.

The demodulated colour difference signals are internally **supplied to the delay line. The matrixed signals are externally available.** The colour difference matrix switches automatically between PAL/SECAM and NTSC, however, it is also possible to fix the matrix in the PAL standard.

Which colour standard the 1C can decode depends on the external X-tals. The X-tal to be connected to pin 34 must have a frequency of 3.5 MHz (NTSC-M, PAL-M or PAL-N) and pin 35 can handle X-tals with a frequency of 4.4 and 3.5 MHz. To prevent calibration problems of the horizontal oscillator the external switching between the 2 X-tals should be carried out when the oscillator is forced to pin 35. For a reliable calibration of the horizontal oscillator it is very important that the X-tal indication bits (XA and XB) are not corrupted. For this reason the X-tal bits can be read in the output bytes so that the software can check the W-bus transmission.

2.7. RGB output circuit and black-current stabilisation

The colour-difference signals are matrixed with the luminance signal to obtain the RGB-signals. The TDA 884X device has one linear RGB input. This RGB signal can be controlled on contrast and brightness.

The output signal has an amplitude of about 2 volts black-to-white at nominal input signals and nominal settings of the controls.

To increase the flexibility of the 1C it is possible to insert OSD and/or teletext signals directly at the RGB outputs.

This insertion mode is controlled via the insertion input (pin 26 in the S-DIP 56- and pin 38 in the QFP-64 level). This blanking action at the RGB outputs has some delay which must be compansated externally.

To obtain an accurate biasing of the picture tube a "Continuous Cathode Calibration" circuit has been developed.

This function is realised by means of a 2-point black level stabilisation circuit.

When the TV receiver is switched-on, the RGB output signals are blanked and the black current loop will try to set the right picture tube bias levels.Via the AST bit a choice can be made between automatic start-up or a start-up via the m-processor.

3. TUNER

Either a PLL or a VST tuner is used as a tuner.
UV1316 (VHF/UHF) is used as a PLL tuner. For only PALM/N, NTSC M applications UV 1336 is used as the PLL tuner. UV 1315 (VHF/UHF) is used as a VST Tuner.

Channel coverage of UV1316:

BAND	OFF-AIR CHANNELS		CABLE CHANNELS	
	CHANNELS RANGE (MHz)	FREQUENCY	CHANNELS	FREQUENCY RANGE (MHz)
Low Band	E2toC	48.25 to 82.25 (1)	S01 to S08	69.25 to 154.25
Mid Band	E5toE12	175.25 to 224.25	S09 to S38	161.25to439.25
High Band	E21 to E69	471.25 to 855.25 (2)	S39toS41	447.25 to 463.25

(1). Enough margin is available to tune down to 45.25 MHz.
(2). Enough margin is available to tune up to 863.25 MHz.

Noise	Typical	Max.	**Gain**	**Min.**	**Typical**	Max.
Low band	: 5dB	9dB	All channels	: 38dB	**44dB**	**52dB**
Mid band	: 5dB	9dB	Gain Taper (of-air channels)	: -		**8dB**
High band	: 6dB	9dB				

Channel Coverage UV1336:

BAND	CHANNELS	FREQUENCY RANGE (MHz)
Low Band	2toD	55.25to139.25
Mid Band	EtoPP	145.25to391.25
High Band	QQ to 69	397.25to801.25

Noise is typically 6dB for all channels. **Gain** is minimum 38dB and maximum 50dB for all channels.

Channel Coverage of UV1315:

BAND	OFF-AIR CHANNELS		CABLE CHANNELS	
	CHANNELS	FREQUENCY RANGE (MHz)	CHANNELS	FREQUENCY RANGE (MHz)
Low Band	E2toC	48.25(082.25(1)	S01 to S10	69.25 to 168.25
Mid Band	E5 to E12	175.25to224.25	S11 toS39	231.25to447.25
High Band	E21 to E69	471.25 to 855.25 (2)	S40 to S41	455.25 to 463.25

(1). Enough margin is available to tune down to 45.25 MHz.
(2). Enough margin is available to tune up to 863.25 MHz.

Noise	Typ.	Max.	Gain	Min.	Typ.	Max.
Low band	:6dB	9dB	All Channels	38dB	44dB	50dB
Mid band	:6dB	10dB	Gain Taper (off-air channels)	-	-	8dB
High band	:6dB	11dB				

4. VIDEO SWITCH TEA6415C

In case of three or more external sources are used, the video switch 1C TEA6415C is used. The main function of this device is to switch 8 video input sources on the 6 outputs.

Each output can be switched on only one of each input. On each input an alignment of the lowest level of the signal is made (bottom of sync. top for CVBS or black level for RGB signals).

Each nominal gain between any input and output is 6.5dB.For D2MAC or Chroma signal the alignment is switched off by forcing, with an external resistor bridge, 5VDC on the input. Each input can be used as a normal input or as a MAC or Chroma input (with external resistor bridge). All the switching possibilities are changed through the BUS.

Driving 75ohm load needs an external resistor.

It is possible to have the same input connected to several outputs.

5. AM **DEMODULATOR TDA9830**

The TDA9830 is designed for AM-sound demodulation used in L and L'' standard.

Sound IF Input:

The sound IF amplifier consists of three AC-coupled differential amplifier stages each with approximately 20dB gain. At the output of each stage is a multiplier for gain controlling. The overall control range is approximately -6 to +60dB and the frequency response (-3dB) of the IF amplifier is approximately 6 to 70MHz. The steepness of gain control is approximately 10mV/dB.

IFAGC:

The automatic gain control voltage to maintain the AM demodulator output signal at a constant level is generated by a mean level detector.The AGC-detector charges and discharges the capacitor at pin 3 controlled by the output signal of the AM-demodulator compared to an internal reference voltage.The maximum charge/discharge current is approximately 5 mA.

AM-demodulator

The IF amplifier output signal is fed to a limiting amplifier (two stages) and to a multiplier **circuit.** However the limiter output signal (which is not any more AM modulated) is also fed to the multiplier, which provides AM demodulation (in phase demodulation). After lowpass **filtering (fg @ 400kHz) for carrier rejection and** buffering, the demodulator output signal is present at **pin 6.**

Audio Switch

This circuit is an operational amplifier with three input stages and internal feedback network determining gain (OdB) and frequency response (fg @ 700kHz). Two of the input stages are connected to pin 7 and pin 9, the third input stage to an internal reference voltage. Controlled by the switching pins 10 and 12, one of the three input stages can be activated and a choice made between two different AF signals or mute state. The selected signal is present at pin 8. The decoupling capacitors at the input pins are needed, because the internally generated bias voltage for the input stages must not be influenced by the application in order to avoid OC-plop in case of switching.

Reference Circuit:

This circurt-is a band gap stabiliser in combination with a voltage regulation amplifier, which provides an internal reference voltage of about 3.6V nearly independent from supply voltage and temperature. This reference voltage is filtered by the capacitor at pin 4 in order to reduce noise. It is used as a reference to generate all important voltages and currents of the circuit.
For application in 12V power supply concepts, there is an internal voltage divider in combination with a Darlington transistor in order to reduce the supply voltage for all 1C function blocks to approximately 6V.

6. DIGITAL TV SOUND PROCESSOR TDA9875

The TDA9875 is a single-chip Digital TV Sound Processor.
Supported standards are M, B/G, D/K, I and L.

Description of the demodulator and decoder section:

SIF Input:

Two input pins are provided, SIF1 e.g. for terrestrial TV **and** SIF2 e.g. for a satellite tuner. The selected signal is passed through **an** AGC circuit and then digitized by an 8-bit ADC operating at 24.576MHz.

AGC:

The gain of the AGC amplifier is controlled from the ADC output by means of a digital control loop employing hysteresis.
The AGC has a fast attack behaviour to prevent ADC overloads and slow decay behaviour AGC oscillations.
For AM demodulation AGC must be switched off.

Mixer

The digitized input signal is fed to the mixers, which mix one or both input sound carriers down to zero IF. A 24-bit control word for each carrier sets the required frequency.

FM and AM Demodulation

An FM or AM input signal is fed via a band-limiting filter to a demodulator that can be used for either FM or AM demodulation.
Apart from the standard (fixed) de-emphasis characteristic, an adaptive de-emphasis is available for encoded satellite programs.
A stereo decoder recovers the left and right signal channels from the demodulated **sound** carriers.

FM Identification:

The identification of the FM sound mode is performed by AM synchronous demodulation of the pilot signal and narrow-band detection of the identification frequencies. The result is available via the TC-bus interface.

NICAM Demodulation:

The NICAM signal is transmitted in a DQPSK code at a bit rate of 728 kbit/s. The NICAM demodulator performs DQPSK demodulation and feeds the resulting bitstream and clock signal onto the NICAM decoder and, for evaluation purposes, to PCLK (pin 1) and NICAM (pin 2).

NICAM Decoder:

The device performs all decoding functions in accordance with the "EBU NICAM 728 specification". After locking to the frame alignment word, the data is descrambled by applying the defined pseudo-random binary sequence; the device will then synchronise to the periodic frame flag bit CO.
The status of the NICAM decoder can be read out from the NICAM status register by the user. The OSB bit indicates that the decoder has locked to the NICAM data. The VDSP bit indicates that the decoder has locked to the NICAM data and that the data is valid sound data.

7. SOUND OUTPUT STAGE TDA2614H'DA2615n'DA26160

TDA2614 is used as the AF output amplifier for mono applications. It is supplied by ±12VDC coming from a separate winding in **the** SMPS transformer. An output power of 2'6W (THD=0.5%) can be delivered into an 8ohm load.
TDA2615 is used as the AF output amplifier for stereo applications. It is supplied by ±12VDC coming from a separate winding in the SMPS transformer. An output power of 2'6W (THD=0.5%) can be delivered into an 8ohm load.
TDA2616Q is used as the AF output amplifier for stereo and dolby prologic applications. It is supplied by ±16VDC coming from a separate winding in the SMPS transformer. An output power of 2'12W (THD=0.5%) can be delivered into an 8ohm load.

8. VERTICAL OUTPUT STAGE WITH TDA8351/8356

The TDA8351/8356 vertical deflection circuit can be used in 90° and 110° deflection systems with field frequencies from 50 up to 1201-fz. With its bridge configuration the deflection output can be DC coupled with few external components.

Only a single supply voltage for the scan and a second supply for the flyback are needed. The TDA8356 is intended for 90° systems and the TDA8351 is intended for 110° systems.

The drive voltage is amplified by an amplifier and fed to two amplifiers, one is inverting and the other is a non inverting amplifier. The outputs (pins 7 and 4) are connected to the series connection of the vertical deflection coil and feedback resistor Rsense (R702//R703). The voltage across Rsense is fed via pin 9 to correction amplifier, to obtain a deflection current which is proportional to the drive voltage. The supply voltage for the TDA8351/8356 is 15VDC at pin 3. The supply voltage generator has a separate supply voltage of 45VDC at pin 6.

9. VIDEO OUTPUT AMPLIFIER TDA6107Q

The TDA6107Q consists of three monolithic video output amplifiers. The amplifier can be seen as an operational amplifier with negative feedback.

The advantage of negative feedback is that the amplifier characteristics do not play an important role up to certain frequencies.

The internal flash diodes protect the amplifiers against flash over in the picture tube.

The only protections required at the cathode outputs are a flash resistor and a sparkgap.

The TDA6107Q has an internal thermal protection circuit which gives a decrease of the slew rate at high temperatures.

Furthermore, the device needs only one power supply voltage (Vdd).

In contrast to previous types of DMOS video amplifiers, all the external resistors (Rf, Ri and Ra) are integrated, so the gain is fixed and saves 9 resistors.

Furthermore, the reference voltage is integrated, it saves a resistor divider and a decoupling capacitor. So, the replacement value of the TDA6107Q is very high.

The TDA6107Q is provided with a black current data pin. Since TDA884X is used as drive device, no adjustments are required for gain and black setting, as the TDA884X has PC white point adjustment and black current set-up.

10. SINGLE/MULTISTANDARD VIF/SIF-PLL and FM-PLUAM DEMODULATOR TDA9818

The TDA9818is an 1C for multistandard vision IF signal processing, sound AM and FM demodulation.

It is a gain controlled wide band VIF-amplifier (AC-coupled). It is applicable (or IP frequencies of 38.9 MHz, 45.75 MHz and 58.75 MHz.

True synchronous demodulation is provided with active carrier regeneration. It has a VCO frequency which can be swrtchable between L and L accent (alignment external) picture carrier frequency.

The TDA9818 has a SIF input for single reference QSS mode (PLL controlled). SIF AGC detector is to provide gain controlled SIF amplifier. The AM demodulator is without extra reference circuit. The supply voltage is +5VDC at pin **21.**

11. COMBFILTER SAA4961

The SAA 4961 is a one-chip, PAL/NTSC combfilter 1C with internal delay lines, filters, clock control, synchronisation and signal switches. The combfilter function is realised in a switched capacitor technique, so it has time discrete but amplitude continuous processing.

The Y/CVBS input is first clamped and then fed to the delay-line and combfilter section via a low pass pre-filter

This filter can be bypassed via the external LPF-on pin. This pin is internally pulled up, to put the filter default on. The Y/CVBs input is also fed to the sync seperator, where horizontal and vertical reference pulses are made.

Bypass mode can be forced via BYP (pin 3).FSC (pin 1) is the subcarrier input which is connected to the colour decoder.

Input FSCSW pin indicates if fsc or 2*fsc **is** used.

The Sys1,2 pins (20, 23) indicate which system standard is processed. Sys2 is internally pulled up, Sys1 is internally pulled down. Therefore when the Sys1,2 inputs are left open, automatically PAL 4.43MHz is forced.

SAA4961 output pin 15 "CVBS" can be used for parallel-synced teletext decoders, to guarantee that the teletext display always has a correct timing relation with the main picture. Comb filter is disabled by setting SAA4961 pin 3 "BYP" high.

12. POWER SUPPLY (SMPS)

The DC voltages required at various parts of the chassis are provided by an SMPS transformer controlled by the 1C MC44604 which is designed (or driving, controlling and protecting switching transistor of SMPS. The transformer produces 150/115V for FBT input, ±14V for audio output 1C, S+5V for microcontroller, +15V for vertical output (field scan) and +33V for tuner and some other ICs and transistors.

13. MICROCONTROLLER SDA525X

The device is TV TEXT tuning and control system based on the SDA 525X TV TEXT microcontroller. It is designed for a low cost mono TV-SET with analogue picture and sound control. Neverthless the system offers an on screen display (OSD) and IR remote control of all functions.

SDA525X has the following features:

- Display of program number, channel number, TV standard, analogue values, sleep timer, parental control, and mute is done by OSD.
- Single LED for IR active, standby and on mode indication.
- 1 Control line to select external source.
- 3 Control lines for TV standard selection.
- Frequency synthesis tuning (62.5 kHz steps)
- 192 step tine tuning
- Channels corresponding to standards B/G, OIRT, L **and I (I+)**
- Mono sound control by analogue voltage
- System configuration with service mode

14. SERIAL ACCESS CMOS 8K (1024*8) EEPROM ST24C08

The ST24C08 is a 8Kbit electrically erasable programmable memory (EEPROM), organised **as** 4 blocks of 256'8 bits.

The memory is compatible with the PC standard, two wire serial interface which uses a bi-directional data bus and serial clock.

The memory carries a built-in 4 bit, unique device identification code (1010) corresponding to the PC bus definition.

This is used together with 1 chip enable input (E) so that up to 2*8K devices may be attached to the K; bus and selected individually.

15. CLASS AB STEREO HEADPHONE DRIVER TDA1308

The TDA1308 is an integrated class AB stereo headphone driver contained in a DIPS plastic package.
The device is fabricated in a 1 mm CMOS process and has been primarily developed for portable digital audio applications.

16.SAWFILTERS

Saw filter type	**Model:**
G1965M	PAL-SECAM B/G MONO
G3962M	PAL-SECAM B/G GER&NIC STEREO, PAL I' NIC STEREO, INT.1
G1984	PAL-SECAM B/G GER&NIC STEREO INT-2
J1951M	PAL-IMONO
J3950M	PAL-I NIC STEREO
J1956M	PAL-I'MONO
K2955M	PAL-SECAM B/G-D/K MONO, PAL-SECAM B/G-D/K-I', MONO, PAL-SECAM B/G-D/K-L MONO
K2958M	PAL-SECAM B/G-D/K (38) MONO
K2962M	PAL-SECAM B/G-LA' MONO
G3957M	PAL-SECAM B/G-L/L' GER&NIC BQ/L STEREO
K6256K	PAL-SECAM B/G-D/K-I-L/L MONO, PAL-SECAM B/G-D/K-I, L/L' GER&NIC BG/L STEREO, PAL-SECAM B/G-D/K-I-L/L I, NICAM STEREO, PAL-SECAM B/G-D/K-I-IA' GER&NIC I'-B/G-L, STEREO
K6259K	PAL-SECAM B/G-D/K-I-M/N (EURO) MONO
M1963M	PAL M/N MONO, NTSC M MONO, PAL M/N-NTSC M MONO

17. BTSC STEREO/SAP/DBX-DECODER and AUDIO PROCESSOR TDA9855

The TDA9855 is a BTSC stereo/SAP/dbx decoder and audio processor. It performs all functions to transform the composite baseband signal into the appropriate audio output signals to line out and to the loudspeaker output stages.

1C DESCRIPTIONS AND INTERNAL BLOCK DIAGRAM

TDA8840/8842/8844
TUNER (UV1315, UV1316, UV1336)
TEA6415C
TDA9830
TDA2614/2615/2616Q
TDA8351/8356
TDA6107Q
SAA4961
MC44604
SDA525X
TDA9875
TDA9818
ST24C08
TDA1308
G1965M
TDA9855

TDA8840/8842/8844:

The TDA884X is lyC-bus controlled single chip TV processor which is intended to be applied in PAL, NTSC, PAL/NTSC and multi-standard television receivers. These 1C' s are nearly pin compatible with the TDA837X TV processors but have a higher degree of integration because the delay line (TDA4665 function) and the SECAM decoder have been integrated. In addition to these functions some additional features have been added like "Continuous Cathode Calibration" (2-point black current loop which results in an accurate biasing of the 3 guns), adjustable luminance delay time, blue stretching and dynamic skin tone control.

Features:

Vision IF circuit with PLL demodulator
Alignment-free multi-standard FM sound demodulator (4.5 MHz to 6.5 MHz)
Audio switch
Flexible source selection with CVBS switch and Y(CVBS)/C input so that a comb filter can be applied
Integrated chrominance trap circuit
Integrated luminance delay line
Asymmetrical peaking in the luminance channel with a noise coring function
Black stretching of non-standard CVBS or luminance signals
Integrated chroma band-pass filter with switchable center frequency
Blue stretch circuit which offsets colours near white towards blue
RGB control circuit with "Continuous Cathode Calibration" and white point adjustment
Linear RGB inputs and fast blanking
Possibility to insert a "blue black" option when no video signal is available
Horizontal synchronisation with two control loops and alignment-free horizontal oscillator
Vertical count-down circuit
Vertical driver optimised for DC-coupled vertical output stages
I•'C-bus control of various functions
Low dissipation (850 mW)

Functional Differences between the 8840/8842/8844:

1C VERSION (TDA)	**8840**	**8842**	**8844**
Multi-standard IF		**X**	**X**
Automatic Volume Limiting	X	X	
PAL Decoder	**X**	**X**	**X**
SECAM Decoder		X	X
NTSC Decoder		X	X
Dynamic Skin Control			X
Colour Matrix PAL/NTSC (Japan)		X	X
Colour Matrix NTSC Japan/USA			
YUV interface			X
Base-band delay line	**X**	**X**	**X**
Adjustable luminance delay time			X
Horizontal geometry			X
Horizontal and vertical zoom			X
Vertical scroll			X

PINNING	**PIN VALUE**
1. Sound IF input	: ImVrms
2. External audio input	: SOOrnVrms
3. IF demodulator tuned circuit 1	
4. IF demodulator tuned **circuit 2**	
5. IF-PLL loop filter	**Min:32-Max:60 MHz**
6. IF video output	4.7V (Negative Modulation), 2V (Positive Modulation)
7. Serial clock input	Low level max."! .5 V, High level min 3.5V
8. Serial data input/output	Low level max:1.5 V, High level min 3.5V
9. Bandgap decoupling	
10. Chrominance input (S-VHS)	**1Vpp, Max:1.4Vpp**
11. External CVBS/Y input	1 Vpp, Max: 1.4Vpp
12. Main supply voltage 1	8V, Min:7.2V, Max:8.8V
13. Internal CVBS **input**	**1Vpp, Max:1.4Vpp**
14. Ground 1	
15. Audio output	700mVrms, Min:500mVrms, Max:900mVrms
16. SECAM PLL decoupling	
17. External CVBS input	Vpp, Max:1.4Vpp
18. Black-current input	Amplitude of "low" reference current : 8mA Amplitude of "high" reference current : 20mA
19. Blue output	2Vpp
20. Green **output**	**2Vpp**
21. Red output	**2Vpp**
22. Beam current limiter input/V-guard input	
23. Red input for insertion	0.7Vpp, Max:0.8Vpp
24. Green input for insertion	0.7Vpp, Max:0.8Vpp
25. Blue input tor insertion	0.7Vpp, Max:0.8Vpp
26. RGB insertion input	Max:0.3V
27. Luminance input	1.4Vpp
28. Luminance output	1 -4Vpp
29. (B-Y) signal **output**	**1.05Vpp**
30. (R-Y) signal output	1.05Vpp
31. (B-Y) signal **input**	**1.05Vpp**
32. (R-Y) signal input	1.05Vpp
33. Subcarrier reference output	3.58/4.43 MHz
34.3.58 MHz crystal connection	
35.4.43/3.58 MHz crystal connection	
36. Loop filter phase detector	
37.2nd supply voltage 1	8V, Min:7.2V, Max:8.8V
38. CVBS output	1 Vpp, Max: 1.4Vpp
39. Decoupling digital **supply**	1.8V
40. Horizontal output	Max: 0.3V
41. Flyback input/sandcastle output	Min:100ma, Max:300mA
42. Phase-2 filter	150 ms/ms
43. Phase-1 filter	**±0.9 kHz, Max: ±1.2 kHz**
44. Ground 2	
45. East-west drive output	
46. Vertical drive A output	**0.95mA**
47. Vertical drive B output	**0.95mA**
48. IF input 1	
49. IF **input 2**	
50. EHT/overvoltage protection input	Min: 1.2V, Max : **2.8V**
51. Vertical sawtooth capacitor	**3Vpp**
52. Reference current input	**3Vpp**
53. AGC decoupling capacitor	
54. Tuner AGC output	Max:9V (Maximum tuner **AGC** Output voltage), 300mV (Output saturation voltage)
55. Audio deemphasis	500mVrms
56. Decoupling sound **demodulator**	

UV1315,UV1316,UV1336

General description of UV1315:

The UV1315 tuner belongs to the UV 1300 familiy of tuners, which are designed to meet a wide range of applications. It is a combined VHF, UHF tuner suitable for CCIR systems B/G, H, L, L', I and I'. The low IP output impedance has been designed for direct drive of a wide variety of SAW filters with sufficient suppression of triple transient.

Features of UV1315:

- Member of the UV1300 family small sized UHF/VHF tuners
- Systems CCIR:B/G, H, L, L', I and I'; OIRT:D/K
- Voltage synthesized tuning (VST)
- Off-air channels, S-cable channels and Hyperband
- Standardized mechanical dimensions and pinning
- Compact size

PINNING	**PIN VALUE**
Gain control voltage (AGC)	4.0V, Max:4.5V
Tuning voltage	
High band switch	5V, Min:4.75V, Max:5.5V
Mid band switch	5V, Min:4.75V, Max:5.5V
Low band switch	5V, Min:4.75V, Max:5.5V
Supply voltage	5V, Min:4.75V, Max:5.5V
Not connected	
Not connected	
Not connected	
10. Symmetrical IF output 1	
11. Symmetrical IF output 2	

Bandswitching table:

	Pin 3	**Pin 4**	Pin 5
Low band	**0V**	**0V**	+5V
Mid band	**0V**	**+5V**	0V
High band	+5V	0V	0V

General description of UV1316:

The UV1316 tuner belongs to the UV 1300 family of tuners, which are designed to meet a wide range of applications. It is a combined VHF, UHF tuner suitable for CCIR systems B/G, H, L, L', I and I'. The low IF output impedance has been designed for direct drive of a wide variety of SAW filters with sufficient suppression of triple transient

Features of UV1316:

- Member of the UV1300 family small sized UHF/VHF tuners
- Systems CCIR: B/G, H, L, L', I and I'; OIRT: D/K
- Digitally controlled (PLL) tuning via lyC-bus
- Off-air channels, S-cable channels and Hyperband
- World standardized mechanical dimensions and world standard pinning
- Compact **size**
- Complies to "CENELEC **EN55020" and "EN55013"**

PINNING	**PIN VALUE**
1. Gain control voltage (AGC)	4.0V, Max:4.5V
2. Tuning voltage	
PC-bus address select	**Max:5.5V**
PC-bus serial clock	Min:-0.3V, Max:5.5V
PC-bus serial data	Min:-0.3V, Max:5.5V
Not connected	
PLL supply voltage	5.0V, Min:4.75V, Max:5.5V
ADC input	
Tuner supply voltage	33V, Min:30V, Max:35V
10. Symmetrical IF output 1	
11. Symmetrical IF output 2	

General description of UV1336:

UV1336 series is developed for reception of **channels broadcast in accordance with the M, N standard. The tuning is available** through built-in digitally controlled lyC bus (PLL).

Features of UV1336:

Global standard pinning
Integrated Mixer-Oscillator&PLL function
Conforms to CISPR 13, FCC and DOC (Canada) regulations
Low power consumption
Both Phono connector and 'F' connector are available

PINNING **PIN VALUE**
1. Gain control voltage : 4.0V, Max:4.5V
Tuning voltage
Address select : Max:5.5V
Serial clock : Min.--0.3V, Max:5.5V
Serial data : Min:-0.3V, Max:5.5V
Not connected
Supply voltage : 5.0V, Min:4.75V, Max:5.5V
ADC input (optional)
Tuning supply voltage : 33V, **Min:30V, Max-35V**
10. Ground
11. IF output

TEA6415C:

General Description:

The main function of the TEA6415C is to switch 8 video input sources on the 6 outputs.
Each output can be switched to only one of the inputs whereas but any same input may be connected to several outputs.
All switching possibilities are controlled through the lyC-bus.

Features:
20 MHz Bandwith
Cascadable with another TEA6415C (Internal address can be changed by pin 7 voltage)
8 inputs (CVBS, RGB, Mac, CHROMA, ...)
6 Outputs
Possibility of MAC or chroma signal for each input by switehing-off the clamp with an external resistor bridge
Bus controlled
6.5dB gain between any input and output
-55dB crosstaljk at 5MHz
Fully ESD protected

PINNING	PIN VALUE			
1. Input	Max	2Vpp, Input Current	1mA, Max	3mA
2. Data	Low level	-0.3V Max:1.5V, High level	3.0V Max	Vcc+0.5V
3. Input	Max	2Vpp, Input Current	1mA, Max	3mA
4. Clock	Low level	-0.3V Max:1.5V, High level	3.0V Max	Vcc+0.5V
5. Input	Max	2Vpp, Input Current	1mA, Max	3mA
6. Input	Max	2Vpp, Input Current	1mA, Max	3mA
7. Prog				
8. Input	Max	2Vpp, Input Current	1mA, Max	3mA
9. Vcc	12V			
10. Input	Max	2Vpp, Input Current	1mA, Max	3mA
11. Input	Max	2Vpp, Input Current	1mA, Max	3mA
12. Ground				
13. Output	5.5Vpp,	Min	4.5Vpp	
14. Output	5.5Vpp,	Min	4.5Vpp	
15. Output	5.5Vpp,	Min	4.5Vpp	
16. Output	5.5Vpp,	Min	4.5Vpp	
17. Output	5.5Vpp,	Min	4.5Vpp	
18. Output	5.5Vpp,	Min	4.5Vpp	
19. Ground				
20. Input	Max: 2Vpp,	Input Current	: 1mA, Max	: 3mA

TDA9830:

General description:

The TDA9830, a monolithic integrated circuit, is **designed** for AM-sound demodulation used in L- and L'-standard.
The 1C provides an audio source selector and also mute switch.

Features:

- Adjustment free wideband synchronous AM demodulator
- Audio source-mute switch (low noise)
- Audio level according EN50049
- 5 to 8V power supply or 12 V **alternative**
- Low power consumption

PINNING **PIN VALUE**
1. Sound IF differential input signal ; Minimum IF input signal (between pins 1 and 16):60mV
Max:100mV Maximum IF input signal (between pins 1 and 16) :120mV Min :70mV
Notconnected
AGC capacitor
REF voltage filtering capacitor
Notconnected
AM demodulator output THD:0.8%, Max:2%; S/N:53dB, Min:47%; DC potential: 2.15V, Min : 2.00V Max **:2.30V**
Input signal (from AM) to audio **switch** Max: 1.2V
Output signal from audio switch 80dB, Min : 70dB
Input signal (from external) to audio switch **Max:1.2V**

10. Switch input select control	Audio switching voltage to activate pin7 : Min :OV, Max :0.8V Audio switching voltage to activate pin9 : Min: 1.5V, Max :Vp
11. Supply voltage	12V,Min:10.8V,Max:13.2V
12. Mute control	For Mute-ON Min : 0V, Max: 0.8V For Mute-OFF Min : 1.5V, Max: **Vp**
13. Ground	
14. Supply voltage	**5V, Min: 4.5V, Max: 8.8V**
15. Not connected	
16. Sound IF differential input **signal**	Look at pin 1

TDA2614H-DA2615/TDA2616Q:

General Description of TDA2614:

The TDA2614 is a power amplifier in a 9-lead single-in-line (SIL9) plastic medium power package. It has been especially designed for mains fed applications.

Features:

- Requires very few external components
- No switch-on/switch-off clicks
- Input mute **during switch-on and switch-off**
- Low offset voltage between output and ground
- Hi-fi in accordance with IEC 268 and DIN 45500
- Short-circuit proof and thermal protected
- Mute **possibility**

PINNING	PIN VALUE
1. Not connected	
2. Mute input	300mA (For mute to activate)
3. Ground	
4. Not connected	
5. Supply voltage (negative)	**-12VDC**
6. Output	**6.9Vrms**
7. Supply voltage (positive)	**+12VDC**
8. Inverting input (Ground)	0V
9. Non-inverting input	700mVrms, Min : SOOmVrms, Max : 900mVrms

General Description of TDA2615:

The TDA2615 is a dual power amplifier in a 9-lead single-in-line (SIL9). It has been especially designed for mains fed applications.

Features:

- Requires very few external components
- No switch-on/switch-off clicks
- Input mute during switch-on and switch-off
- Low offset voltage between output and **ground**
- Excellent gain balance of both amplifiers
- Hi-fi in accordance with IEC 268 and DIN 45500
- Short-circuit proof and thermal protected
- Mute possibility

PINNING	PIN VALUE
1. Non-inverting input 1	700mVrms, Min :500mVrms, Max : 900mVrms
2. Mute **input**	300mA (For mute to activate)
3. Ground	
4. Output 1	**6.9Vrms**
5. Supply **voltage (negative)**	-12VDC
6. Output 2	6.9Vrms
7. Supply voltage (positive)	**+12VDC**
8. Inverting inputs 1 and 2 (Ground)	**0V**
9. Non-inverting input 2	700mVrms, Min : 500mVrms, Max : 900mVrms

General Description of TDA2616Q:

The TDA2616Q is a dual power amplifier. It is supplied in a 9-lead SIL-bent-to DIL plastic power package (SOT157). It has been especially designed for mains fed applications.

Features:

- Requires very few external components
- No switch-on/switch-off clicks
- Input mute during switch-on **and switch-off**
- Low offset voltage between output and ground
- Excellent gain balance of both amplifiers
- Hi-fi in accordance with IEC 268 and DIN 45500
- Short-circuit proof and thermal protected
- Mute possibility

PINNING	**PIN VALUE**
1. Non-inverting input 1	700mVrms, Min : SOOmVrms, Max : 900mVrms
Mute input	300mA (For mute to activate)
Ground	
Output 1	**9.8Vrms**
Supply voltage (negative)	-16VDC
Output 2	9.8Vrms
Supply voltage (positive)	+16VDC
Inverting inputs 1 and 2 (Ground)	**0V**
Non-inverting **input 2**	700mVmns, Min : SOOmVims, **Max**: 900mVrms

TDA8351/8356:

General Description:

The TDA8356 is a power circuit for use in 90e colour deflection system for field frequencies of 50 to 120 Hz.
The circuit operates as a highly efficient class G system.
The TDA8351 is a power circuit for use in 1100 colour deflection system for field frequencies of 50 to 120 Hz.
The circuit operates as a highly efficient class G system.

Features:

Few external components
Highly efficient fully **DC-coupled vertical output bridge circuit**
Vertical flyback switch
Guard circuit
Protection against:
• short-circuit of the output pins (7 and **4)**
- short-circuit of the output pins to Vp
Temperature (thermal) protection
High EMC immunity because of common mode inputs
A guard signal in zoom mode

PINNING	**PIN VALUE**
1. Input power-stage (positive); includes li(sb) signal bias	400mA, Min : 50mA, Max : 500mA
2. Input power-stage (negative); includes li(sb) signal bias	400mA, Min : 50mA, Max : 500mA
Operating supply voltage	+15VDC
Output voltage B	Max : 52V Output current: 2App (TDA8356) 3App (TDA8351)
Ground	
Input flyback supply voltage	Min : Vp, Max : 50V
Output voltage A	Max : 52V Output current: 2App (TDA8356) 3App (TDA8351)
Guard output voltage	Max:5.5V (Io:100mA)
Input feedback voltage	Max:52V

TDA6107Q:

The TDA6107Q includes three **video** output amplifiers in a SIL 9 MP (Single In Line 9 pins Medium Power) package SOT111BE, using high-voltage DMOS technology, and is intended to drive the three cathodes of a colour picture tube.
In contrast to previous types of DMOS video amplifiers, all external resistors (R(, Ri and Ra) are integrated, so the gain is fixed and it saves 9 resistors.
To obtain maximum performance, the amplifier should be used with black-current control and mounted on the CRT panel.

Features:

Bandwith: 4.0 MHz typ at 100Vpp (Measured in application set-up, with Rfl=1K5 and CI=Ctube+Cpcb=10pF)
Slewrate: 950V/ms
Fixed gain of 50 times
No external components, only the well known supply decoupling
Very simple application with a variety of colour decoders
Black-current measurement output for automatic black current stabilization
Only one supply voltage needed
Internal protection against positive appearing CRT flash-over discharges
Protection against ESD
Internal reference voltage
Thermal protection
Controllable switch-off **behaviour**
Very small PCB dimensions
Very high replacement value

PINNING	**PIN VALUE**
1. Inverting input 1	2Vpp
2. Inverting input 2	2Vpp
3. Inverting input 3	2Vpp
4. Ground	
5. BSC-output	Max:7V
6. Supply voltage	200VDC
7. Cathode output 3	20mA, 100Vpp
8. Cathode output 2	20mA, 100Vpp
9. Cathode output 1	20mA, 100Vpp

SAA4961:
The SAA4961 is an adaptive alignment-free one chip comb filter compatible with both PAL and NTSC systems and provides high performance in Y/C separation.

Features:

- One chip adaptive multi-standard comb filter
- Time discrete but continuous amplitude signal processing with analogue interfaces
- Internal delay lines, filters, clock processing and signal switches
- Alignment-free
- No hanging dots or **residual cross colour on vertical transients**
- Few external components

It is possible to switch the comb filter into one of the following 3 modes:

1. **Comb mode** : In this mode, luminance and chrominance comb filter function **are active.** Chrominance output pin (pin 12) outputs comb filtered chrominance signal, luminance output pin (pin 14) outputs comb filtered luminance signal and CVBS output pin (pin 15) outputs delay compensated CVBS signal.
2. **Comboff mode**: In this mode, luminance comb filter function is turned off, but chrominance comb filter function operates. Chrominance output pin (pin 12) outputs comb filtered chrominance signal, luminance output pin (pin 14) outputs delay compensated CVBS signal and CVBS output pin (pin 15) outputs delay compensated CVBS signal.
3. Bypass mode : In this mode, no IC-function is active. Cext is bypassed to chrominance output pin (pin 12) and Yext/CVBS is bypassed to luminance output pin (pin 14) and CVBS output pin (pin 15).

PINNING	**PIN VALUE**
Subcarrier frequency **input**	200mVpp, Min : 10OmVpp, Max : 400mVpp
Internal connected	
Bypass mode forcing	HIGH level input voltage Min : 2.4VDC, Max : Vcc
Internal connected	
Decoupling capacitor	1.25VDC, Min : 1.1VDC, Max : 1.4VDC
Internal connected	
Analogue supply voltage	5VDC, Min : 4.75VDC, Max : 5.5VDC
Analogue supply voltage output **buffer**	5VDC, Min : 4.75VDC, Max: 5.5VDC
Analogue ground	
10. External chrominance input	0.7Vpp, Max: **1Vpp**
11. Analogue ground output buffer	
12. Chrominance output signal	OmV, Min : -400mV, (DC offset voltage related to input) Max : +400mV BYPASS-mode:Co/Cext : OdB, Min : -1dB, Max: +1dB
13.fsc reference selection	HIGH level input voltage Min : 2V, Max : Vcc Low level input voltage Min : 0V, Max**: 0.8V**
14. Luminance output signal	1Vpp, Min : 0.6Vpp, Max : 1.54Vpp
15. CVBS and Y output signal	1Vpp, Min : 0.6Vpp, Max: 1.54Vpp
16. Internal connected	
17. CVBS and Y input **signal**	1Vpp, Min : 0.7Vpp, Max : 1.4Vpp
18. Disable prefilter	HIGH level input voltage Min : 2.0VDC, Max **: Vcc** LOW level input voltage Min : OVDC, Max : 0.8VDC
19. Storage Capacitor	2.5VDC, Min : 1.8VDC, Max : Vcc
20. Standard select 1	HIGH level input voltage Min : 2.0VDC, Max : Vcc LOW level input voltage Min : OVDC, Max : 0.8VDC
21. Digital ground	
22. Digital supply voltage	5VDC, Min : 4.75VDC, Max : 5.5VDC
23. Standard **select 2**	HIGH level input voltage Min : 2.0VDC, Max : Vcc LOW level input voltage Min : OVDC, Max : 0.8VDC
24. Decoupling capacitor	1.25VDC, Min : 1.1VDC, Max: 1.4VDC
25. Controlling I/O pin	HIGH level input voltage Min : 2.4VDC, Max : Vcc LOW level input voltage Min : OVDC, Max : 1.5VDC
26. Analogue ground PLL	
27. Analogue supply voltage **PLL**	5VDC, Min : 4.75VDC, Max : 5.5VDC
28. Internal connected	

MC44604:

General description:

The MC44604 is an enhanced high performance controller that is specifically designed for off-line and DC-to-DC converter applications. It offers a really safe and reliable power management thanks particularly to its protection features (foldback, overvoltage detection, soft start, accurate demagnetization detection). Its high current totem pole output is also ideally suited for driving a power MOSFET, but can also be used for driving a bipolar transistor in low power converters. In addition to these features,
the MC44604 offers an efficient stand-by mode.

Features:

Current Mode Controller
  Operation up to 250 kHz Output Switching Frequency
  Inherent Feed Forward Compensation
  Latching PWM for Cycle-by-Cycle Current Limiting
  Oscillator with Precise Frequency Control
igh **Flexibility**
  Externally Programmable Reference Current
  Secondary or Primary Sensing
  High Current Totem Pole Output
  Undervoltage Lockout with Hysteresis

Safety/Protection Features
Overvoltage Protection Facility against Open Loop
Protection against Short Circuit on Oscillator Pin
Fully Programmable Foldback
Soft-Start Feature
Accurate max Duty Cycle Setting
Demagnetization (Zero Current **Detection) Protection**
Internally Trimmed Reference

Green Controller"
Low Start-Up and Operating Current
Patented Stand-by Pulsed Mode for low stand-by losses
Low dV/dT for Low EMI radiations

PINNING	**PIN VALUE**
1. Output Supply Voltage (Vcc)	12VDC
2. Output Supply Voltage (Vc)	12VDC
3. Output voltage	LOW Level Drop Voltage 1VDC, Max 1.2VDC (Isink=100mA) 1.4VDC, Max 2VDC (Isink=500mA) **HIGH Level** Drop Voltage 1.5VDC, Max 2VDC (Isource=200mA) 2VDC, Max 2.7VDC (Isource=500mA)
4. Ground	
5. Foldback input	0.9VDC, Min:-0.3VDC, Max : Vcc+0.3VDC
6. Overvoltage protection **(OVP)**	0.78VDC, Min:-0.3VDC, Max : Vcc+0.3VDC
7. Current sense input	Min:-0.3VDC, Max: Vcc+0.3VDC
8. Demagnetization detection input	Idemag-ib (source):-4mA Idemag-ib (sink): 10mA
9. Standby current set	Ipeak-stby/Iref: 0.40 Min : 0.37 Max : 0.43
10. Oscillator voltage swing	2Vpp
11. Softstart/Dmax/Voltage **mode**	[discharge : 5mA, Min : 1.5mA (Vsoft **starts! V)**
12. Clamp E/A input	4.7VDC, Min : 4.5VDC Max : 4.9VDC
13. E/A **output**	HIGH State: 6.5VDC, Min : 5.5VDC, Max : 7.5VDC LOW State : l.OVDC, 1.1VDC
14. E/A input	2.5VDC, Min : 2.4VDC, Max : 2.6VDC
15. Stand-by management	Stand-by On Detection current ratio : Idet/Iref: 0.38, Min : 0.34, Max : 0.42 Stand-by regulation current ratio : Ireg/Iref: 20.5, Min : 18, Max : 23
16. Rref **input**	2.5VDC, Min : 2.4VDC, Max : 2.6VDC

SDA525X:

General description:

The SDA525X is designed for a low cost,mono TV-set with analogue picture and **sound** control. IN SDA525X the following 1C' s are used and supported:

Non-volatile memory	SDA 2526 or SDA2546
PLL	SDA 3202-3, SDA 3302
IR transmitter	SDA 2208-3 or SDA 2218
IR preamplifier	SFH 506-32

Features:
General:
- Display of program number, channel number, TV standard, analoaue values, sleep timer, parental control, and mute is done **by** OSD

Single LED for IR active, standby and on mode indication
Local control (8 keys)
IR remote control
Control of volume, contrast, brightness, and saturation by analogue voltages
Non-volatile memory for 50 or 100 programs, optimum analogue values and system parameters
Individual delta volume for each program
1 control line to select external source
3 control lines for TV standard selection
Automatic muting if no carrier detected
Automatic switch-off when carrier disappears for more than 5 minutes
Software protection against tube flashovers with internal watchdog timer
Sleep timer
Parental control
IF 38 MHz or 38.9 MHz selectable

uning:
Frequency synthesis tuning (62.5 kHz steps)
192 step fine tuning
Channels corresponding to standards
100 programs selectable by directly entering a program number or by up/down function depending on the NVM size
Channel selection by directly entering a channel number or by up/down function
Channel search function in two directions

Sound:
- Mono sound control by analogue voltage

Service Mode:
- System configuration with service mode

PINNING	PIN VALUE	
1. Crystal selection output 1	LOW level	0V
	HIGH level	4.2V
2. Volume + switch input	LOW level	0V
	HIGH level	5V
3. Volume - switch input	LOW level	0V
	HIGH level	5V
4. Program - switch input	LOW level	0V
	HIGH level	5V
5. Program + switch input:	LOW level	0V
	HIGH level	5V
6. LED output	LOW level	0V
	HIGH level	4.2VDC
7. Filter (sound standard) selection output 1	LOW level	0V
	HIGH level	4.2V
8. Filter (sound standard) selection output 2	LOW level	0V
	HIGH level	4.2V
9. Mod-switch selection output	LOW level	0V
	HIGH level	4.2V
10. Ground		
11. Supply voltage	+5V	
12. 18 MHz crystal connection 1	2Vpp	
13. 18 MHz crystal connection 2	2Vpp	
14. L-ACC output	LOW level	0V
	HIGH level	3.6V
15. RESET output	LOW level	0V
	HIGH level	5V
16. Comb filter PAL/SECAM selection output	LOW level	0V
	HIGH level	5V
17. Tuning output	LOW level	0V
	HIGH level	3.4\
18. Audio switch transistor selection 1	LOW level	0V
	HIGH level	5V
19. Audio switch transistor selection 2	LOW level	0V
	HIGH level	5V
20. Audio switch transistor selection 3	LOW level	0V
	HIGH level	5V
21. Audio switch transistor selection 4	LOW level	0V
	HIGH level	5V
22. Comb filter standard selection 1	LOW level	0V
	HIGH level	5V
23. Comb filter standard selection 2	LOW level	0V
	HIGH level	5V
24. Analogue ground		
25. Filter 3		
26. Filter 2		
27. Filter 1		
28. Analogue supply voltage	5VDC	
29. Reference current input		
30. CVBS input	1Vpp	
31. Service output	LOW level	0V
	HIGH level	5V
32. AV2-status input	LOW level	0V
	HIGH level	5V
33. AV1-status input	LOW level	0V
	HIGH level	5V
34. AFC output	600mVpp	
35. Ground		
36. IR-input	LOW level	0V
	HIGH level	5V
37. Supply voltage	5V	
38. LC input	SVpp	
39. LC output	5Vpp	
40. Mute output	LOW level	0V
	HIGH level	4.2V
41. St-by output	LOW level	0V
	HIGH level	1.4V
42. Clock signal output		
43. Data output		
44. Local connection	LOW	0V
	HIGH	5V
45. SAND input	4Vpp	
46. ODD/EVEN **output**	1.8V	
47. OSD-red output	LOW level	0V
	HIGH level	5V
48. OSD-green output	LOW level	0V
	HIGH level	5V
49. OSD-blue output	LOW level	0V
	HIGH level	5V
50. OSD-blanking output	LOW level	0Vh
	HIGH level	5V
51. COR output	LOW level	0V
	HIGH level	5V
52. Crystal selection output 2	LOW level	0V
	HIGH level	4.2V

TDA9875:

General description:

The TDA9875 is a single-chip Digital TV Sound Processor (DTVSP) for analogue and digital multi-channel sound systems.

Features:

Demodulator and decoder section:

- Sound IF (SIF) input switch e.g. to select between terrestrial TV SIF and SAT SIF sources
- SIF AGC with 21 dB control range
- SIF 8-bit Analogue-to-Digital Converter (ADC)
- DQPSK demodulation for different standards, simultaneously with 1-channel FM demodulation
- NICAM decoding (B/G, I and L standard)
- Two-carrier multistandard FM demodulation (B/G, D/K and M standard)
- Decoding for three analogue multi-channel systems (A2, A2+ and A2*) and satellite sound
- Optional AM demodulation for system L, simultaneously with NICAM
- Programmable identification (B/G, D/K and M standard) and **different identification times**

DSP section:

- Digital crossbar switch for all digital signal sources and destinations
- Control of volume, balance, contour, bass, treble, pseudo stereo, spatial, bass boost and soft-mute
- Plop-free volume control
- Automatic Volume Level (AVL) **control**
- Adaptive de-emphasis for satellite
- Programmable beeper
- Monitor selection for FM/AM DC values and signals, with peak detection option
- PS-bus interface for a feature extension (e.g. Dolby surround) with matrix, level adjust and mute.

Analogue audio section:

- Analogue crossbar switch with inputs for mono and stereo, SCART 1 input/output, SCART2 input/output and line output
- User defined full-level/-3dB scaling for SCART outputs
- Output selection of mono, stereo, dual A/B, dual A or dual B
- 20 kHz bandwith for SCART-to-SCART copies
- Standby mode with functionality for SCART copies
- Dual audio digital-to-analogue converter from DSP to analogue crossbar switch, bandwith 15kHz
- Dual audio ADC from analogue inputs to DSP
- Two dual audio Digital-to-Analogue Converters (DACs) for loudspeakers (Main) and headphone (Auxiliary) outputs; also applicable for L, R, C and S in the Dolby Pro Logic mode with feature extension.

PINNING	**PIN VALUE**
1. NICAM clock output (728kHz)	LOW level input voltage Max 0.8V HIGH level input voltage Min 2.0V
2. Serial NICAM DATA output (728kHz)	LOW level input voltage Max 0.8V HIGH level input voltage Min 2.0V
3. First PC-bus slave address modifier	LOW level input voltage Max 0.8V HIGH level input voltage Min 2.0V
4. SCL (PC-bus clock)	LOW level input voltage Max 1.6V HIGH level input voltage Min 3.0V
5. SDA (PC-bus data)	LOW level input voltage Max 0.8V HIGH level input voltage Min 2.0V
6. Analogue supply ground 1	0V
7. Analogue supply voltage 1	5V, Min : 4.75V, Max : 5.5V
8. Resistor for reference current generator	Iref: 220mA, Min : 170mA, Max : 260mA
9. First general purpose I/O **pin**	
10. Sound IF input 2	Min : 21Vrms, Max : 250mVrms
11. Reference voltage for demodulator **part**	Vdda1/Vssa1 : 50%, Min : 35%, Max : 65%
12. Sound IF input 1	Min : 21Vrms, Max : 250mVrms
13. Second PC-bus **slave address modifier**	LOW level input voltage : Max : 0.8V HIGH level input voltage : Min **: 2.0V**
14. Digital supply ground 1	0V
15. Digital supply voltage 1	5V, Min : 4.75V, Max : 5.5V
16. Capacitor for power-on reset	LOW level input voltage : Max : 1.6V HIGH level input voltage : Min **: 3.0V**
17. Crystal oscillator output	
18. Crystal oscillator input	
19. Tuning voltage output for crystal **oscillator**	
20. Second general purpose **I/O pin**	
21. System clock output	LOW level input voltage Max 0.5V HIGH level input voltage Min 2.9V
22. PS-bus clock	LOW level input voltage Max 0.8V HIGH level input voltage Min 2.0V
23. PS-bus word select	LOW level input voltage Max 0.8V HIGH level input voltage Min 2.0V
24. PS-bus data output 2	LOW level input voltage Max 0.8V HIGH level input voltage Min 2.0V
25. PS-bus data output 1	LOW level input voltage Max 0.8V HIGH level input voltage Min 2.0V
26. PS-bus data **input 2**	LOW level input voltage Max 0.8V HIGH level input voltage Min 2.0V
27. PS-bus data input 1	LOW level input voltage Max 0.8V HIGH level input voltage Min 2.0V
28. First test pin; connected to ground for normal operation	
29. Audio mono input	500mVrms
30. Second test pin; connected to ground tor normal operation	
31. External audio input right channel	350mVrms

32. External audio input left channel	350mVrms
33. SCART 1 input right channel	350mVrms
34. SCART 1 input **left** channel	350mVrms
35. Ground guards	
36. SCART 2 input **right channel**	350mVrms
37. SCART 2 input left channel	350mVrms
38. Analogue supply voltage 2	5V, Min : 4.75V, Max : 5.5V
39. Positive reference voltage	
40. Reference voltage ground	**0V**
41. Filter capacitor pin 1	
42. Filter capacitor pin 2	
43. Analogue supply ground 2	**0V**
44. Filter capacitor pin 2	
45. Filter capacitor pin 1	
46. Reference voltage 2	Vdda2/Vssa2 : 50%
47. Scan 1 output right channel	500mVrms
48. Scart 1 output left channel	500mVrms
49. Digital supply ground 2	0V
50. Analogue supply ground 4	0V
51. Scart 2 output right channel	500mVrms
52. Scart 2 output left channel	500mVrms
53. Reference voltage 3	Vdda3/Vssa3:50%
54. Post-filter capacitor pin right channel	
55. Post-filter capacitor pin left channel	
56. Analogue supply ground 3	**0V**
57. Headphone output right channel	Vo(clip): Min : 1400mVrms
58. Headphone output left channel	Vo(clip) : Min : 1400mVrms
59. Analogue supply voltage 3	5.0V, Min : 4.75V, Max : **5.5V**
60. Loudspeaker (main) output right channel	Vo(clip) : Min : 1400mVrms
61. Loudspeaker (main) output left channel	Vo(clip): Min : 1400mVrms
62. Line output left channel	500mVrms
63. Line output right channel	500mVrms
64. Digital supply voltage 2	5.0V, Min : 4.75V, Max**: 5.5V**

TDA9818:

General description:

The TDA9818 is an integrated circuit for multistandard vision IF signal processing, sound AM and FM demodulation.

Features:

- 5 V supply voltage
- Applicable for IF frequencies of 38.9 MHz, 45.75 MHz and 58.75 MHz
- Gain controlled wide band VIF-amplifier (AC-coupled)
- True synchronous demodulation with active carrier regeneration (very linear demodulation, good intermodulation figures, reduced harmonics, excellent pulse response)
- Robustness for ovemodulation better than 105% due to gated phase detector at L/L accent standard and PLL-bandwidth control at negative modulated standards
- VCO frequency switchable between L and L accent (alignment external) picture carrier frequency
- VIF AGC detector for gain control, operating as peak sync detector for B/G, peak white detector for L; signal controlled reaction time for L
- Tuner AGC with adjustable takeover point (TOP)
- AFC detector without extra reference circuit
- AC-coupled limiter amplifier for sound intercanrier signal
- Alignment-free **FM-PLL demodulator with high linearity**
- SIF input for single reference QSS mode (PLL controlled); SIF AGC detector for gain controlled SIP amplifier; single reference QSS mixer able to operate in high performance single reference QSS mode and in intercarrier mode
- AM demodulator without extra reference circuit
- Stabilizer circuit for ripple rejection and to achieve constant output signals
- ESD protection **for all pins**

PINNING	**PIN VALUE**
1. VIF differential input signal voltage 1	Input signal voltage sensitivity 60m Vims, Max:100mVrms
2. VIP differential input signal voltage 2	Input signal voltage sensitivity 60mVnns, Max:100mVrms
3. Standard switch	Min **:** 2.8V, Max **:** Vp
4. VIF AGC capacitor	**Charging current**: 1 mA, Min : 0.75mA, Max : 1**.25mA** **Discharging current**: B/G standard : 20mA, Min : 15mA, Max:25mA Normal mode L : 300nA, Min : 225nA, Max : 375nA Fast mode L : 40mA, Min : 30mA, Max : 50mA
5. SIP AQC capacitor	**Charging current**: FM mode : 12mA, Min : 8mA, Max : 16mA AM mode : 1.2mA, Min : 0.8mA, Max : 1.6mA **Discharging current**: FM mode : 12mA, Min : 8mA, Max**: 16mA** Normal mode AM : 1.4mA, Min : 1mA, Max : 1.8mA Fast mode AM : 85mA, Min : 60mA, Max: 110mA
PLL loop filter	Min:0V, Max:Vp
L/L accent switch **and adjust**	Min:0V, Max:Vp
Audio output	Rx : 470ohm : 250mVrms, Min : 200mVrms, Max : 300mVrms Rx: Oohm : 500mVrms, Min : 400mVrms, Max : 600mVrms
9. De-emphasis input	Min:0V, Max:Vp
10. De-emphasis output	Min:0V, Max:Vp
11. Decoupling capacitor	Min:0V, Max:Vp
12. Single reference QSS/intei-can-ier output voltage	140m Vims, Min : 100mVrms Max **: 180mVnns**

13. Sound intercanier input voltage	Input signal voltage for lock-in: Max : lOOmVrms Input signal voltage : 250mVnns
14. Tuner AGC output	IF input signal voltage for minimum starting point of tuner takeover 2mV, Max: 5mV IF input signal voltage for maximum starting point of tuner takeover 100mV,Min:50mV
15. Blacklevel detector	Min : 0V, Max : Vp
16. Composite video output voltage	1.1Vpp, Min : 0.97Vpp, Max : 1.23Vpp
17. AFC output	Upper limit: Vp-0.3V, Min : Vp-0.6V, Lower limit: 0.3V, Max : 0.6V
18. VC01 resonance circuit	
19. VC02 resonance **circuit**	
20. Ground	0V
21. Supply voltage	5V, Min : 4.5V, Max : 5.5V
22. Tuner AGC **takeover adjust (TOP)**	
23. SIF differential input signal voltage 1	Input signal voltage sensitivity SOmVrms, Max : 100mVrrns
24. SIF differential input **signal voltage 2**	Input signal voltage sensitivity 50mVrms, Max: lOOmVrrns

ST24C08:

General description:

The ST24C08 is a 8Kbit electrically erasable programmable memory (EEPROM), organized as 4 blocks of 256 ' 8 bits.
The memory operates with a power supply value as low as 2.5V. Both Plastic Dual-in-Line and Plastic Small Outline packages are available.

Features:

- Minimum 1 million ERASE/WRITE cycles with over 10 years data retention
- Single supply voltage:4.5 to 5.5V
- Two wire serial interface, fully lyC-bus compatible
- Byte and Multibyte write (up to 8 bytes)
- Page write (up to 16 bytes)
- Byte, random and sequential read modes
- Self timed programming cycle

PINNING	**PIN VALUE**
1. Write protect enable (Ground)	0V
2. Not connected (Ground)	0V
3. Chip enable input (Ground)	0V
4. Ground	0V
5. Serial data address input/output	Input LOW voltage : Min :; -0.3V, Max : 0.3*Vcc Input HIGH voltage: Min : 0.7*Vcc, Max : Vcc+1
6. Serial clock	Input LOW voltage : Min: -0.3V, Max: 0.3'Vcc Input HIGH voltage: Min : 0.7*Vcc, Max : Vcc+1
7. Multibyte/Page write mode	Input LOW voltage : Min: -0.3V, Max :0.5V Input HIGH voltage: Min : Vcc-0.5, Max : Vcc+1
8. Supply voltage	Min : 2.5V, Max : 5.5V

TDA1308:

Features:

- Wide temperature range
- No switch ON/OFF clicks
- Excellent power supply ripple rejection
- Low power consumption
- Short-circuit **resistant**
- High performance
  - high signal-to-noise ratio
  - high **slew rate**
  - low distortion
- Large output voltage swing

PINNING	**PIN VALUE**
Output A (Voltage swing)	Min : 0.75V, Max : 4.25V
Inverting input A	Vo(clip): Min : 1400mVrms
Non-inverting input A	**2.5V**
Ground	0V
Non-inverting input B	**2.5V**
Inverting input B	Vo(clip): Min : 1400niVrms
Output B (Voltage swing)	Min : 0.75V, Max : 4.25V
Positive **supply** :	5V, Min : 3.0V, Max : 7.0V

G1965M:

Features:

- TV IF filter with Nyquist slope and sound shelf at typ. 20.4dB
- High colour carrier level at typ. 1.0dB
- Constant group delay
- Insertionattenuationtyp.15.0dB

PINNING

1. Input
2. Input-ground
3. Chip carrier-ground

TDA9855

General description:

The TDA9855 is a bipolar-integrated BTSC stereo/SAP decoder with hi-fi audio processor (lyC-bus controlled) for application in TV sets.

Features:

- Quasi alignment-free BTSC stereo decoder due to auto adjustment of channel separation via lyC-bus
- High integration level with automatically tuned integrated filters
- Input level adjustment lyC-bus controlled
- Alignment-free Sap processing
- dbx noise reduction **circuit**
- Audio processor
  - -Selector for internal and external signals (line in)
  - -Automatic volume level control
  - -Subwoofer or surround output with separate volume control
  - -Volume control
  - -Special loudness characteristic automatically controlled in combination with volume setting
  - -Bass and treble control
  - -Audio signal zero crossing detection between any volume step switching
  - -Mute control at audio signal zero crossing
  - -lyC-bus tranceiver.

PINNING	**PIN VALUE**
1. Treble control capacitor, left **channel**	
Bass control capacitor, left channel	
Bass control capacitor, left channel	
Not connected	
Programmable address bit (module address)	
Output, left channel	500mVrms, Min : 480mVrms, **Max**: 520mVrms
7. Input loudness, left channel	
8. Input volume control, left channel	2.15Vrms, Min: 2Vrms
9. Output effects, left channel	
10. Automatic volume control **capacitor**	
11. Reference voltage 0.5Vcc	4VDC
12. Line input, left channel	2.3Vrms, Min: **2Vrms**
13. Input automatic volume control, left channel	Min : 2Vrms
14. Output selector, left channel	
15. Line output, left channel	500mVrms
16. Capacitor timing wideband for **dbx**	
17. Capacitor timing spectral for dbx	
18. Capacitor wideband for dbx	
19. Capacitor spectral for dbx	
20. Variable emphasis out for dbx	
21. Variable emphasis in for dbx	
22. Capacitor noise reduction for **dbx**	
23. Capacitor mute for SAP	
24. Capacitor DC decoupling for SAP	
25. Common ground	**0V**
26. Serial data input/output	High level input voltage: Min : 3VDC, Max : Vcc Low level input voltage: Min:-0.3VDC,Max:1.5VDC Low level output voltage : Max : 0.4VDC
27. Serial clock input	High level input voltage: Min : 3VDC, Max : Vcc Low level input voltage : Min : -0.3VDC, Max : 1.5VDC Low level output voltage: Max: 0.4VDC
28. Supply voltage	8VDC
29. Input composite signal	250mVrms
30. Capacitor for electronic filtering of supply	
31. Capacitor for pilot detector	
32. Capacitor for pilot detector	
33. Capacitor for phase detector	
34. Capacitor for filter adjust	
35. Ceramic resonator	
36. Capacitor DC decoupling mono	
37. Capacitor DC decoupling **stereo/SAP**	
38. Line output, right channel	500mVrms
39. Output selector, right channel	
40. Input automatic volume control, right channel	Min:2Vrms
41. Line input, right channel	2.3Vrms, Min: 2Vrms
42. Capacitor 2 pseudo function	
43. Capacitor 1 pseudo function	
44. Output effects, **right channel**	
45. Input volume control, right channel	Min: 2Vrms
46. Input loudness, right channel	
47. Output, right channel	500mVrms, Min : 480mVrms, Max : 520mVrms
48. Not connected	
49. Filter capacitor for subwoofer	
50. Bass control capacitor, right channel	
51. Bass control capacitor, right channel	
52. Treble control capacitor	

AK19 CHASSIS MANUAL ADJUSTMENTS PROCEDURE

In order to enter the service menu, first enter the installation menu and then press the digits 4, 7, 2 and 5 respectively.

For ADJUST settings:

Select Adjust using VorA button and press Oor<^| button to enter it. To select different adjust parameters, use V^A button. To change the selected parameter, use [> or <] button.

WHITE BALANCE ADJUSTMENT:

The following three parameters are used to make white balance adjustment. To do this, use a Colour Analyser. Using white point RED, white point GREEN and white point BLUE parameters, insert the + sign in the square which is in the middle of the screen.

ADJUST 00 = White Point RED
ADJUST 01 = White Point GREEN
ADJUST 02 = White Point BLUE

AGC ADJUSTMENT:

In order to do AGC adjustment, enter a BOdBmV RF signal level from channel C-12.
Connect a digital voltmeter to pin 1 of the tuner. Change the, AGC parameter until you see 3.70VDC on voltmeter display. Check that picture is normal at 90dBmV signal level.

ADJUST 03 = AGC

IF-PLL NEGATIVE ADJUSTMENT (Only with PLL tuner):

Connect 38.9 MHz test pattern for PAL B/G, PAL-SECAM B/G, 39.5 MHz test pattern for PAL I or 45.75 MHz test pattern for PAL M/N, NTSC M model to Z401 SAW filter input terminals. Change the IF-PLL Negative parameter until you see IN, DOWN below. If you cannot catch IN, DOWN position this way, using a screwdriver rotate the VIF-COIL LT401 left or right until you see IN, DOWN.

ADJUST 04 = IF-PLL Negative

IF-PLL POSITIVE ADJUSTMENT (Only with PLL tuner):

Connect 33.9 MHz test pattern for SECAM L' model to Z401 SAW filter input terminals. Change the IF-PLL Positive parameter until you see IN, DOWN below. If you cannot catch IN, DOWN position this way, using a screwdriver rotate the VIF-COIL LT401 left or right until you see IN, DOWN.

ADJUST 05 = IF-PLL Positive

LUMINANCE DELAY ADJUSTMENT (with only TDA 8844 video processor):

ADJUST 06 = Y-Delay PAL

Enter a PAL B/G colour and black-white bar test pattern via RF. Adjust Y-Delay PAL **till** the colour transients on the colour bar of the pattern become as sharper and colours between transients do not mix with each other as possible.

Note: If the SAW filter is one of the G1965M, J1951M, J3950M, K2958M, K2962M, G3957M, K6256K, K6259K or M1963M, there is constant group delay distortion, so for an equal delay of the luminance and chrominance signal the delay must be set at a value of i60nS. **This** means the **adjustment must be set to the maximum value.**

ADJUST 07 = Y-Delay SECAM

Enter a SECAM B/G colour and black-white bar test pattern via RF. Adjust Y-Delay SECAM **till** the colour transients on the colour bar of the pattern become as sharper and colours between transients do not mix with each other as possible.

Note: If the SAW filter is one of the G1965M, K2958M, K2962M, G3957M, K6256K or K6259K, there is constant group delay distortion, so (or an equal delay of the luminance and chrominance signal the delay must be set at a value of I60nS.
This means the adjustment must be set to the maximum value.

ADJUST 08 = Y-Delay NTSC

Enter an NTSC colour and black-white bar test pattern via RF. Adjust Y-Delay NTSC till the colour transients on the colour bar of the pattern become as sharper and colours between transients do not mix with each other as possible.

Note: If the SAW filter is M1963M, there is constant group delay distortion, so for an equal delay of the luminance and chrominance signal the delay must be set at a value of I60nS. This means the adjustment must be set to the maximum value.

ADJUST 09 = Y-Delay Other

In case of other colour systems, enter this system with colour and black-white bar test pattern via RF. Adjust Y-Delay Other **till** the colour transients on the colour bar of the pattern become as sharper and colours between transients do not mix with each other as possible. Normally for an equal delay of the luminance and chrominance signal the delay must be set at a value of I60nS. This means the adjustment must be set to the maximum value.

VERTICAL ZOOM ADJUSTMENT (only for 1100 picture tubes):

ADJUST 10 = Vertical Zoom

Enter a PAL B/G circle test pattern via RF. Change vertical zoom **till** you see the upper and lower **limit** of the circle as close to the upper and lower limit of the picture tube **as** possible.

VERTICAL SCROLL ADJUSTMENT (only for 110e picture tubes):

ADJUST 11 = Vertical Scroll

Enter a PAL B/G circle test pattern via RF. Change vertical scroll till you see the circle exactly in the middle of the screen.

4:3 HORIZONTAL SHIFT ADJUSTMENT:

ADJUST 1 2 = 4 : 3 Horizontal Shift

Enter a RED PURITY test pattern via RF.Change horizontal shift **till** the picture is horizontally centred. Check whether this adjustment is correct after completing Service Mode Adjustment.

4:3 VERTICAL SLOPE ADJUSTMENT:

ADJUST 1 3 = 4 : 3 Vertical Slope

Enter a CROSS-HATCH B/G test pattern via RF. Change vertical slope **till** the size of squares on both the upper and lower part of test pattern become equal to the squares laying on the vertical centre of the test pattern. Check and readjust VERTICAL SLOPE item if the adjustment becomes improper after some other geometric adjustments are done.

4:3 VERTICAL AMPLITUDE ADJUSTMENT:
ADJUST 14 = 4 : 3 Vertical Amplitude
Enter a PAL B/G test pattern via RF. Change vertical slope **till** horizontal black lines on both the upper and lower part of the test pattern become very close to the upper and lower horizontal sides of picture tube and nearly about to disappear. Check and readjust VERTICAL AMPLITUDE item if the adjustment becomes improper after some other geometric adjustments are done.

4:3 S-CORRECTION ADJUSTMENT:
ADJUST 15 = 4 : 3 S-Correction
Enter a PAL B/G circle test pattern via RF. Change S-correction **till** the middle part of the circle is as round as possible.

4:3 VERTICAL SHIFT ADJUSTMENT:
ADJUST 16 = 4 : 3 Vertical Shift
Enter a PAL B/G test pattern via RF. Change Vertical Shift till the test pattern is vertically centred, i.e. horizontal line at the centre pattern is in equal distance both to upper and lower side of the picture tube. Check and readjust Vertical Shift item if the adjustment becomes improper after some other geometric adjustments **are** done.

4:3 EW WIDTH ADJUSTMENT (only for 1100 picture tubes):
ADJUST 17 = 4 : 3 EW Width
Enter a PAL B/G test **pattern via RF. Change EW** Width till **the vertical black and white bars on both left and right side of the** pattern exactly disappear.

4:3 EW PARABOLA WIDTH ADJUSTMENT (only for 1100 picture tubes):
ADJUST 18 = 4 : 3 EW Parabola Width
Enter a PAL B/G test pattern via RF. Change EW Parabola Width **till** vertical lines close to the both sides of the picture frame become parallel to vertical sides of picture tube. Check and readjust EW Parabola Width item if the adjustment becomes improper after some other geometric adjustments are done.

4:3 EW CORNER PARABOLA ADJUSTMENT (only for 1100 picture tubes):
ADJUST 19 = 4 : 3 EW Corner Parabola
Enter a PAL B/G test pattern via RF. Change EW Corner Parabola **till** vertical lines **at** the comers of both sides of picture frame become vertical and parallel to vertical comer sides of picture tube. Check and readjust EW Comer Parabola item if the adjustment becomes improper after some other geometric adjustments are done.

4:3 EW TRAPEZIUM ADJUSTMENT (only for 1100 picture tubes):
ADJUST 20 = 4 : 3 EW Trapezium
Enter a PAL B/G test pattern via RF. Change EW Trapezium till vertical lines, especially lines at the sides of the picture frame became parallel to the both sides of picture tube as close as possible. Check and readjust EW Trapezium item if the adjustment becomes improper after some other geometric adjustments are done.

16:9 HORIZONTAL SHIFT ADJUSTMENT:
ADJUST 21 = 16 : 9 Horizontal Shift
Enter a RED PURITY test pattern via RF.Change horizontal shift **till** the picture is horizontally centred. Check whether this adjustment is correct after completing Service Mode Adjustment.

16:9 VERTICAL SLOPE ADJUSTMENT:
ADJUST 22 = 16 : 9 Vertical Slope
Enter a CROSS-HATCH B/G test pattern via RF. Change vertical slope **till** the size of squares on both the upper and lower part of test pattern become equal to the squares laying on the vertical centre of the test pattern. Check and readjust VERTICAL SLOPE item if the adjustment becomes improper after some other geometric adjustments are done.

16:9 VERTICAL AMPLITUDE ADJUSTMENT:
ADJUST 23 = 16 : 9 Vertical Amplitude
Enter a PAL B/G test pattern via RF. Change vertical slope **till** horizontal black lines on both the upper and lower part of the test pattern become very close to the upper and lower horizontal sides of picture tube and nearly about to disappear. Check and readjust VERTICAL AMPLITUDE item if the adjustment becomes improper after some other geometric adjustments are done.

16:9 S-CORRECTION ADJUSTMENT:
ADJUST 24 = 16 : 9 S-Correction
Enter a PAL B/G circle test pattern via RF. Change S-correction **till** the middle part of the circle is **as** round as possible.

16:9 VERTICAL SHIFT ADJUSTMENT:
ADJUST 25 = 16 : 9 Vertical Shift
Enter a PAL B/G test pattern via RF. Change Vertical Shift till the test pattern is vertically centred, i.e. horizontal line at the centre pattern is in equal distance both to upper and lower side of the picture tube. Check and readjust Vertical Shift item if **the** adjustment becomes improper after some other **geometric adjustments are** done.

16:9 EW WIDTH ADJUSTMENT (only for 1100 picture tubes):
ADJUST 26 = 16 : 9 EW Width
Enter a PAL B/G test pattern via RF. Change EW Width till the vertical black and white bars on both left and right side of the pattern exactly disappear.

16:9 EW PARABOLA WIDTH ADJUSTMENT (only for 1100 picture tubes):
ADJUST 27 = 16 : 9 EW Parabola Width
Enter a PAL B/G test pattern via RF. Change EW Parabola Width till vertical lines close to the both sides of the picture frame become parallel to vertical sides of picture tube. Check and readjust EW Parabola Width item if the adjustment becomes improper after some other geometric adjustments are done.

16:9 EW CORNER PARABOLA ADJUSTMENT (only for 1100 picture tubes):
ADJUST 28 = 16 : 9 EW Corner Parabola
Enter a PAL B/G test pattern via RF. Change EW Comer Parabola till vertical lines at the comers of both sides of picture frame become vertical and parallel to vertical corner sides of picture tube. Check and readjust EW Comer Parabola item if the adjustment becomes improper after some other geometric adjustments are done.

16:9 EW TRAPEZIUM ADJUSTMENT (only for 1100 picture tubes):
ADJUST 29 = 16 : 9 EW Trapezium
Enter a PAL B/G test pattern via RF. Change EW Trapezium till vertical lines, especially lines at the sides of the picture frame became parallel to the both sides of picture tube as close as possible. Check and readjust EW Trapezium item if the adjustment becomes improper after some other geometric adjustments are done.
For OPTION settings:

Select **OPTION** using V or A button and press |> or <] button to enter *H.* To select different **option bytes, use** V or A **button.** Using [> or <] button select the bit you want to set and then set it pressing 0 or 1 button.

OPTION 00
B7B6B5B4B3B2B1BO

B7 = Ina X (Note 1) **(don't care)**
B6 = Inb X (Note 1) **(don't care)**
B5 = Inc X (Note 1) **(don't care)**
B4 = Akb **0 (Auto Kine Biasing, 1=disable black current stabilisation**
loop, 0=enable)
B3 = Foa X (Note 2) **(don't care)**
B2 = Fob X (Note 2) **(don't care)**
B1 = Xa Note 3
BO = Xb Note 3

Notel:
Ina, Inb, Inc bits: Input Source Select Switch. This determines which signal is displayed and which is available at CVBSout pin 38. This output can be connected to teletext, the TDA8395 SECAM add-on or a comb filter. There are two special positions, where the output of pin 38 can be fed through the comb filter, back into the Y and C input pins Hand 10.

INA	INB	INC	Selected Video Source	Selected Audio	CVBS switch ouput (Pin 38)
0	0	0	CVBSIint pin 13	Internal (Note a)	CVBSIint
0	0	1	CVBS2ext pin 17	External pin 2	CVBS2ext
0	1	0	Ys-vhs, Cs-vhs pins 1 1 , 10	External pin 2	Y and C added to CVBS
0	1	1	CVBS3ext pin 11	External pin 2	CVBS3ext
1	0	0	Ys-vhs, Cs-vhs pins 1 1 , 1 0	Internal (Note a)	CVBSIint
1	1	0	Ys-vhs, Cs-vhs pins 1 1 , 10	External pin 2	CVBS2ext

Note a:
Positive Modulation (MOD=1) selects pin 2 for (AM demodulated) sound input.

Note 2:
FOA, FOB bits: 01 time constant: These two bits determine the speed of the 01-loop. It can be forced to slow and fast or set it in the automatic mode. In auto mode a noise detector circuit can switch to slow time constant, when the signal has too much noise.

FOA	FOB	01 -loop mode
0	0	Auto, 01-gating in slow mode (Note b)
0	1	Slow, always gating
1	0	Slow/fast depends on noise detector, always gating
1	1	Fast, no gating

Note b:
Not suitable for weak video recorder signals, because of active 01-gating in the slow mode. Use **FOA,** FOB=1,1 instead.

Note 3:
Xa,Xb
0,1 : PAL M, Pal N, NTSC M
Pin 34 : 3.58 (1 , 2 or 3 crystals)
Pin 35 : **No crystal**
1.0 : PAL B/G, PAL D/K, Pal I/I+, SECAM B/G, SECAM D/K, SECAM L/L', SECAM K1

Pin 34 : No crystal
Pin 35 : 4.43 (1 Crystal)
1.1 : PAL B/G, PAL D/K, Pal I/I+, SECAM B/G, SECAM D/K, SECAM L/L', SECAM K1, PAL M, PAL N, NTSC M
Pin 34 : 3.58 (1 , 2 or 3 Crystals)
Pin 35 : 4.43 (1 Crystal)

OPTION01

B7B6B5B4B3B2B1BO
B7=Forf: 1 (Motel)
B6= Fors: 1 (Note 1)
B5 = DL : X (De-interface: 0= Interface, 1= De-interlace) **(don't care)**
B4 = STB : X (Stand-by) (0= TDA884X in standby mode, 1= 1C operational) **(don't care)**
B3 = Poc : X (Synchronisation mode: 0=Synchronization active, 1 =Synchronisation not active) **(don't care)**
B2 = Cm2 : X (Note2) **(don't care)**
B1 = Cm1 : X (Note2) **(don't care)**
BO = CmO : X (Note2) **(don't care)**

Note-l:

Forf, Fors bits: Forced field frequency: This forces the vertical divider in a 60 Hz mode or automatic. In auto mode it can be given a preference for 50 or 60 Hz or to keep the last detected field frequency.

FORF	FORS	Vertical Frequency
0	0	Auto, 60 Hz if not locked
0	1	60 Hz forced (Note c)
1	0	Auto, keep last detected frequency
1	1	Auto, 50 Hz if not locked

Note c: When already locked at 50 Hz, 60 Hz is forced after sync loss.

Note2:

Cm2, Cm1, CmO bits: Colour Decoder Mode: With these bits the automatic mode can be selected or the decoder can be forced to one of the standards. Xtal selection bits **XA** and **XB** should not be contradictory to a forced Xtal selection in the colour decoder mode (e.g. force pin 35 while there is only a Xtal on pin 34).

CM2	CM1	CMO	Colour Decoder Mode
0	0	0	Automatic, own intelligence, 2 Xtals
0	0	1	Forced Xtal pin 34, PAL/NTSC
0	1	0	Forced Xtal pin 34, PAL
0	1	1	Forced Xtal pin 34, NTSC
1	0	0	Forced Xtal pin 35, PAL/NTSC (Note d)
1	0	1	Forced Xtal pin 35, PAL
1	1	0	Forced Xtal pin 35, NTSC
1	1	1	Forced Xtal pin 35, SECAM

Note d: In this mode, the colour oscillator is forced to use one Xtal pin, while the decoder can select PAL or NTSC automatically.

OPTION 02

B7B6B5B4B3B2B1BO
B7 = Oso : 0 (Over-scan Switch-Off: 0= Switch-off undefined, 1 = Switch-off in vertical overscan)
B6 = Vsd : 0 (Vertical Scan Disable: 0=Ac1ive Vertical Scan, 1 = Disable Vertical Scan)
B5 = Cb : 0 (Chroma Band pass center frequency: 0= Centre frequency **at** Fsc (chroma sub-carrier frequency), 1= Center frequency **at** 1.1'Fsc)
B4 = Bis : 0 (Blue Stretch: 0= Blue Stretch off, 1= Blue Stretch on)
B3 = Bks : 0 (Black Stretch: 0= Black Stretch off, 1= Black Stretch on)
B2 = Ie1 : X (Insertion Enable Fast blanking: 1= enable RGB insertion, 0= disable) **(don't care)**
B1 = Afw : X (AFC Window around IF center frequency: 0= Nominal window, about 80 kHz wide; 1= Enlarged window, about 240 **kHz** wide) **(don't care)**
B0= Bb : 0 (Blue Background: 0= Normal operation, 1= **Blue** background active)

OPTION 03

B7B6B5B4B3B2B1BO
B7 = Hob: Note!
B6 = Bps: 0 (Bypass chroma delay line: 0 Chroma delay line active, 1= Delay line bypassed)
B5 = Acl: X (Automatic Colour Limiting: 0= ACL not needed for standard burst/chroma transmissions; 1= ACL active, **for non** standard chroma-to-burst ratio) **(don't care)**
B4 = Cmb: Note2
B3 = Ast: X (Abs-loop Start-up mode: 0=Automatic mode, RGB **drive** switches on when ABS loop stable; 1 = Switch-on under control **of** micro controller) **(don't care)**
B2 = CL2: 1 (Note3)
B1 =CL1: 1 (Note3)
BO = CLO: 0 (Note3)

Note-1:
0 = Pal+ helper output blanking disabled
1 = Pal+ helper output blanking enabled
Note2: Comb Filter
0 = Pin 33 Low, comb filter off
1 = Sub-carrier output pin 33 active, comb filter **on**
Note3:
CL2,CL1,CLO bits: Cathode drive level:

CL2	CL1	CLO	Variation Cathode Drive Level
0	0	0	Minimum
0	0	1	+14%
0	1	0	+28%
0	1	1	+42%
1	0	0	+57%
1	0	1	+ 71 %
1	1	0	+85%
1	1	1	**+100%**

OPTION 04
B7B6B5B4B3B2B1BO
B7 = Ifs: X (If sensitivity: 0= Normal Sensitivity, 1= Maximum gain reduced by 20 dB (reduces the total gain range)) (don't care)
B6 = Mod : X (Modulation standard: 0 = Negative Modulation, 1 = Positive Modulation, AM demodulated sound can be connected to pin 2) **(don't care)**
B5 = VSW: X (Video Mute Switch : 0= Normal Operation, 1= IF Video signal switched off (pin 6 is forced to ground)) (don't care)
B4 = Sm: X (Sound mute of internal FM demodulator: 0 = Normal Operation, 1 = Sound Muted) (don't care)
B3 = Ds: 0 (Dynamic Skin Control: 1= on, 0= off)
B2 = Dsa: 0 (Dynamic Skin Control Angle: 1= 123 degrees, 0 = 1 1 8 degrees)
B1 = Fav: 0 (Fixed Audio Volume: 0= Volume controlled front-end or external audio output at pin 15,
1= Fixed front-end audio output at pin 15)
BO = Lfa: X (Secam L1 Frequency Adjust: 0= Normal IF Frequency, 1 = IF Frequency shifted for L1 standard (align with IFPL) **(don'tcare)**
OPTION 05
B7B6B5B4B3B2B1BO
B7 = Avl: 0 (Automatic Volume Levelling: 1= active, 0= disabled)
B6 = Hbl: X (Wider Horizontal Blanking: 1= blank left+right edges, 0= normal blanking on H-flyback pulse) (don't **care)**
B5 = Vim: X (Video Ident Mode: 1= Coupled to Source Switch, 0= to IF) (don't care)
B4 = Gai: (Gain of luminance channel: 0= Normal gain of luminance channel (V27 =1Vblack-white) (When CTI is disabled),
1= High Gain for Luminance Input (When CTI is enabled) (V27=0.45Vpp))
B3 = Ncin: X (Vertical Divider Mode: 0=Nonnal operation of the vertical divider, 1 = Vertical divide switched to large search window) **(don'tcare))**
B2 = Stm: X (Search Tuning Mode: 0= Normal operation, 1= Reduced Sensitivity of coincidence detector) (don't care)
B1 = Vid: X (Video Ident Mode: 1= No influence, 0= IFI contols 01- loop) (don't care)
BO = Lbm: 0 (Long blanking mode: 0= Blanking adapted to standard (50 or 60 Hz), 1= Fixed blanking according 50 Hz standard)
OPTION 06
B7B6B5B4B3B2B1BO
B7 = Hco: X (EHT Tracking mode: 0= EHT tracking only on vertical, 1 = EHT tracking on both vertical and East-West) (don't **care)**
B6 = EVG: 0 (Enable Vertical Guard: 0= Only vertical guard detection (Output bit NDF), 1= Detection (NDF) and protection by blanking RGBout
B5 = SBL: X (Service Blanking: 0= No service blanking, 1= Service Blanking active) **(don't care)**
B4 = Prd: X (Over-voltage protection input mode: 0= Only over-voltage detection (output bit XPR),
1= Over- voltage detection (XPR) and inhibit horizontal drive (protection)) (don't care)
B3 = Mat: 0 (TDA8840/4142/44 : PAL/NTSC matrix: 0 = Matrix adapted to standard (Japanese NTSC matrix or PAL matrix),
1= Forced to PAL matrix)
B2 = Rbl: X (RGB Blanking: 0= Normal picture visible, 1= RGBout (pins 21, 20, 19) blanked) **(don't care)**
B1 = Cor: X (Noise coring: 0= Noise coring off; 1= Noise coring on, reduce peaking function on small transients) **(don't care)**
BO = Aen: (Enable APS: 0= APS disabled » Preset, 1= APS enabled » No Preset)

OPTION 07
B7B6B5B4B3B2B1BO
B7 = C3: Note1
B6 = C2: Note1
B5=C1: Note1
B4 = CO: Note1
B3 = CL: Note2
B2 = Tr: Note3
B1 =L1:Note4
BO = LO: Note4
Note1:
C3, C2, C1, CO : These bits define country:
0, 0, 0, 0 = ? : Not allowed
0, 0, 0, 1 = D: Germany
0, 0, 1, 0 = A: Austria
0,0, 1, 1 =CH: Switzerland
0, 1, 0, 0 = 1 : Italy
0, 1, 0, 1 = F: France
0, 1, 1, 0 = B: Belgium
0,1,1, 1 =DK: Denmark
1, 0, 0, 0 = S: Sweden

1, 0, 0, 1 = N: Norway
1, 0, 1, 0 = SF: Finland
1, 0, 1, 1 = GB: Great Britain
1, 1, 0, 0 = NL: Netherlands
1, 1, 0, 1 = *P:* Portugal
1, 1, 1, 0 = E: Spain
1, 1, 1, 1 = TR:Turkey
Note2:
CL : This bit enables or disables Child Lock function.
0=0ff
1 = On (Active)
Note3:
Tr: This bit enables or disables Turkish language usage.
0= Disabled (3 Languages: English, German and French)
1 = Enabled (4 Languages: English, German, French and Turkish)
Note4:
L1, LO : These **bits select menu language:**
0, 0 = English
0, 1 = German
1, 0 = French
1, 1 = Turkish

OPTION 08
B7B6B5B4B3B2B1BO
B7 = Tub : (Tube size: 0= 16 : 9 **Tube size, 1 = 4 : 3 Tube size)**
B6 = Tun : **don't care**
B5 = IfD: Note1
B4 = Ifl: **Note2**
B3 = IfM: Note3
B2 = APS: (To determine whether APS will run at first turning on the TV or not: 0= APS done, 1= APS **set)**
B1 = Hp: (To enable Headphone: 0= No Headphone, 1= Headphone available)
BO = Hue; (In case of NTSC system to enable Hue function: 0= No Hue, 1= Hue Available)
Note1:
IfD
0 = If DK 38.0 MHz
1 = If DK 38.9 MHz
Note2:
Ifl
0 = Ifl 39.5 MHz (Great Britain I, **Only UHF Tuner)**
1 = Ifl 38.9 MHz (Ireland I+, **Standard Tuner)**
Note3:
IfM
0 = If M, N 45.75 MHz S&N American Models, **Tuner UV1336** (Only PAL M, Pal N, NTSC M)
1 = If M, N 38.9 MHz Euro M, **N Models, Standard Tuner**

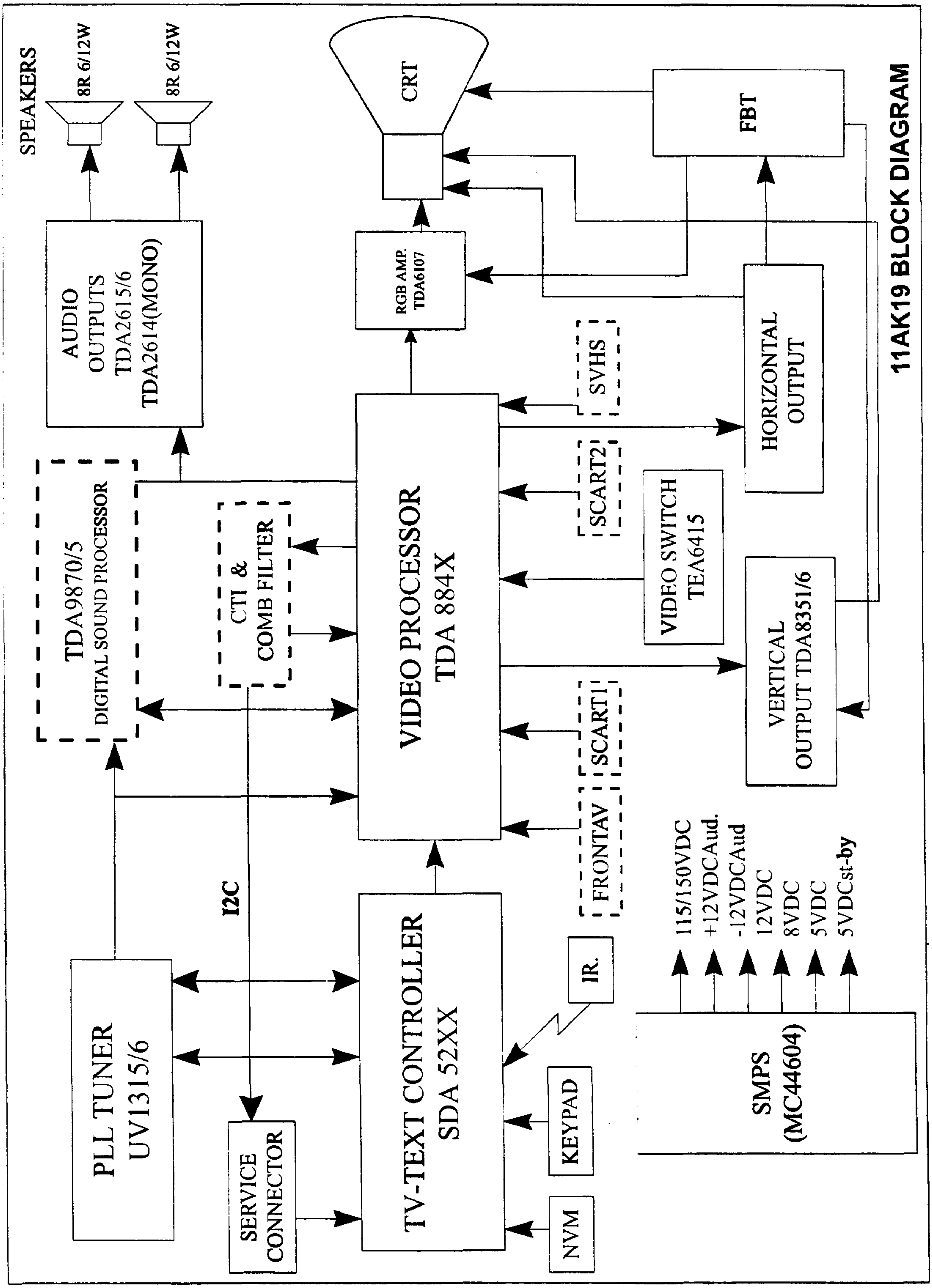
OPTION 09
B7B6B5B4B3B2B1BO
B7 = NM: (NTSC M) Note1
B6 = PN: (PAL N) Note1
B5 = PM: (PAL M) Note1
B4=K1: Note1
B3 = L: Note1
B2 = I: Note1
B1 = DK: Note1
BO = BG: Note1

Note1:
0 = Standard not supported
1 = Standard available

OPTION 10
B7B6B5B4B3B2B1BO
B7 = Txt: **don't care**
B6 = Weu: Note1
B5 = E/T: **Note1**
B4 = Corn: (Enable Comb Filter: 0= Comb filter not supported, 1 = Comb filter available)
B3 = Svh: (Enable S-VHS Input: 0= S-VHS not supported, 1 = S-VHS available)
B2 = Fro: (Enable Front-AV (AV-3): 0= Front-AV (AV-3) not supported, 1 = Front AV (AV-3) available)
B1 = Sc2: (Enable Scart2 (AV-2): 0= Scart2 (AV-2) not supported, 1 = Scart2 (AV2) available)
B0= Sc1: (Enable Scarti (AV-1): 0= Scarti (AV-1) not supported (Not a real case), 1=Scart1 (AV-1) available)

Note1: Weu,E/T: Teletext character set table selection
0, 0 = West Europe+Turkish
0, 1 = East Europe
1, 0 = West Europe
1, 1 = West Europe

GENERAL BLOCK DIAGRAM OF CHASSIS AK19


11AK19 BLOCK DIAGRAM
SPEAKERS
8R 6/12W
8R 6/12W
AUDIO OUTPUTS TDA2615/6 TDA2614(MONO)
TDA9870/5 DIGITAL SOUND PROCESSOR
CTI & COMB FILTER
VIDEO PROCESSOR TDA 884X
RGB AMP. TDA6107
CRT
FBT
HORIZONTAL OUTPUT
VERTICAL OUTPUT TDA8351/6
VIDEO SWITCH TEA6415
SVHS
SCART2
SCART1
FRONTAV
I2C
PLL TUNER UV1315/6
TV-TEXT CONTROLLER SDA 52XX
SERVICE CONNECTOR
IR.
KEYPAD
NVM
SMPS (MC44604)
115/150VDC
+12VDCAud.
-12VDCAud
12VDC
8VDC
5VDC
5VDCst-by

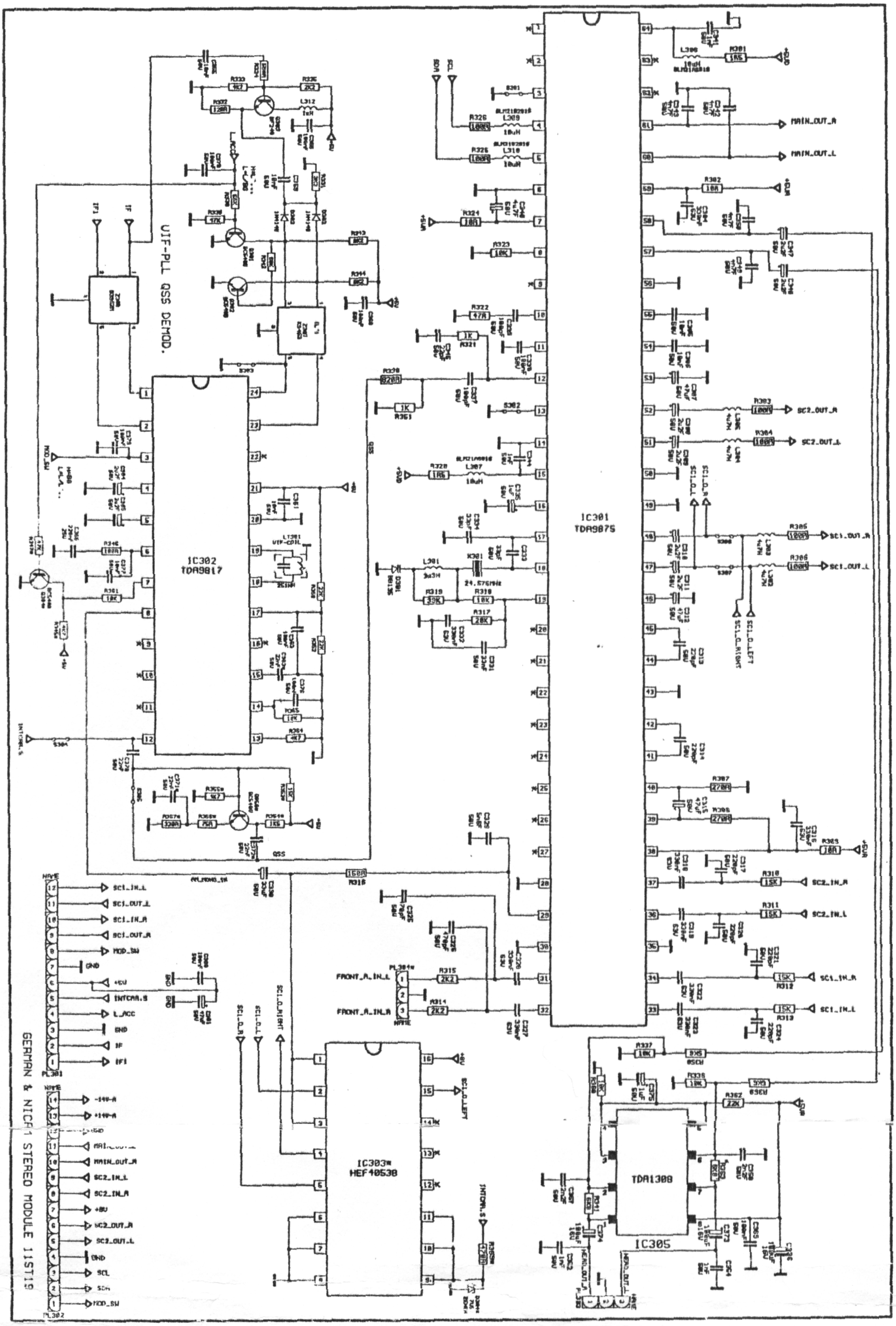
ELECTRONIC COMPONENTS PART LIST

POZ.N(3	VESKOD	DESCRIPTION
	1005017350	CHSASSY19-1GF32122133231
	1007204050	R/C 2040 (NOBRAND)
	1010000535	SPKASSY.5X/54/55 19ST2/60
	2002500200	FUSE ASSY.TK79-A (2.5A)
IC804	2006505080	HEATSINK ASSY. 16/19-REG(2)
	2006505200	HEATSINKASSY.19-CRT BOARD
	2006505220	HEATSINKASSY.19-REG&STR
	2006505230	HEAT.A. 19-HOR&VER BAV&EXT.90B
	2006505250	HEAT.ASSY.19-SMPS 90a170-270V
	2042202060	S.B.ST19-BG/L GS+NI HP FAV
	2046400700	BAV B.ASSY.BAV19A-BAV/OUT
	2052500680	JACK B.ASSY.HP19SB STEREO
	2052500940	FAVB.ASSY.FAV-19STR
	2942202003	S.B.ST19-BG/L GS+NI
	2942202008	S.B.ST19-HEADPHONE
	2942202009	S.B.ST19-FRONTAV
	2946400005	BAV B.ASSY.BAV19-BAV OUT
C705	3011031036	CAPMKT10NF63VJ
C403	3011041036	CAP MKT 100NF 63V J
C435	3011041036	CAP MKT 100NF 63V J
C436	3011041036	CAP MKT 100NF 63V J
C483	3011041036	CAP MKT 100NF 63V J
C709	3011041036	CAP MKT 100NF 63V J
C807	3011041036	CAP MKT 100NF 63V J
C605	3011041548	CAP MKT 100NF 250V K DL
C901	3011041548	CAP MKT 100NF 250V K DL
C801	3011041558	CAP MKT 100NF 250V M AC
C802	3011041558	CAP MKT 100NF 250V M AC
C707	3012231136	CAPMKT22NF100VJ
C051	3012241036	CAP MKT 220NF 63V J
C053	3012241036	CAP MKT 220NF 63V J
C054	3012241036	CAP MKT 220NF 63V J
C071	3012241036	CAP MKT 220NF 63V J
C415	3012241036	CAP MKT 220NF 63V J
C706	3012241036	CAP MKT 220NF 63V J
C518	3013331036	CAP MKT 33NF 63V J
C519	3013331036	CAPMKT33NF63VJ
C522	3013331036	CAP MKT 33NF 63V J
C854	3013331036	CAPMKT33NF63VJ
C304	3013341036	CAP MKT 330NF 63V J
C316	3013341036	CAPMKT330NF63VJ
C318	3013341036	CAP MKT 330NF 63V J
C319	3013341036	CAP MKT 330NF 63V J
C322	3013341036	CAP MKT 330NF 63V J
C323	3013341036	CAP MKT 330NF 63V J
C327	3013341036	CAP MKT 330NF 63V J
C328	3013341036	CAP MKT 330NF 63V J
C332	3013341036	CAP MKT 330NF 63V J
C521	3013341036	CAP MKT 330NF 63V J
C604	3014731036	CAP MKT 47NF 63V J
	3014731136	CAPMKT47NF100VJ
C112	3014741036	CAP MKT 470NF 63V J
C113	3014741036	CAP MKT 470NF 63V J
C113	3014741036	CAP MKT 470NF 63V J
C704	3014741036	CAP MKT 470NF 63V J
C610	3031043038	CAP MKP 100NF 250V J
C833	3032215048	CAP MPP 0.22NF 630V K
can	3034735038	CAP MKP 47NF 630V J
C617	3035643038	CAP MKP 560NF 250V J
C611	3037827078	CAP MKP 7.8NF 1.6KV 3.5%
C808	3061020146	CAPCER1NF50VKB
C809	3061020146	CAPCER1NF50VKB
C855	3061020146	CAPCER1NF50VKB
C853	3061030396	CAPCER10NF50VZF
C380	3061040396	**CAP CER** 100NF 50V Z F
C816	3061040396	CAP CER 100NF 50V ZF
C819	3061040396	CAP CER 100NF 50V ZF
C822	3061040396	CAP CER 100NF 50V ZF
C825	3061040396	CAP CER 100NF 50V ZF
C830	3061040396	CAP CER 100NF 50V ZF
C832	3061040396	CAP CER 100NF 50V ZF
C406	3062230396	CAPCER22NF50VZF
C904	3062724146	CAP CER 2.7NF 500V K B
C608	3063330146	CAP CER 33NF 50V K B
C806	3068210146	CAP CER 820PF 50V K B
C068	3081000856	CAPEL10UF50VM
C102	3081000856	CAPEL10UF50VM
C203	3081000856	CAPEL10UF50VM
C204	3081000856	CAPEL10UF50VM
C402	3081000856	CAPEL10UF50VM
C405	3081000856	CAPEL10UF50VM
C410	3081000856	CAPEL10UF50VM
C428	3081000856	CAPEL10UF50VM
C440	3081000856	CAPEL10UF50VM
C507	3081000856	CAPEL10UP50VM
C514	3081000856	CAPEL10UF50VM

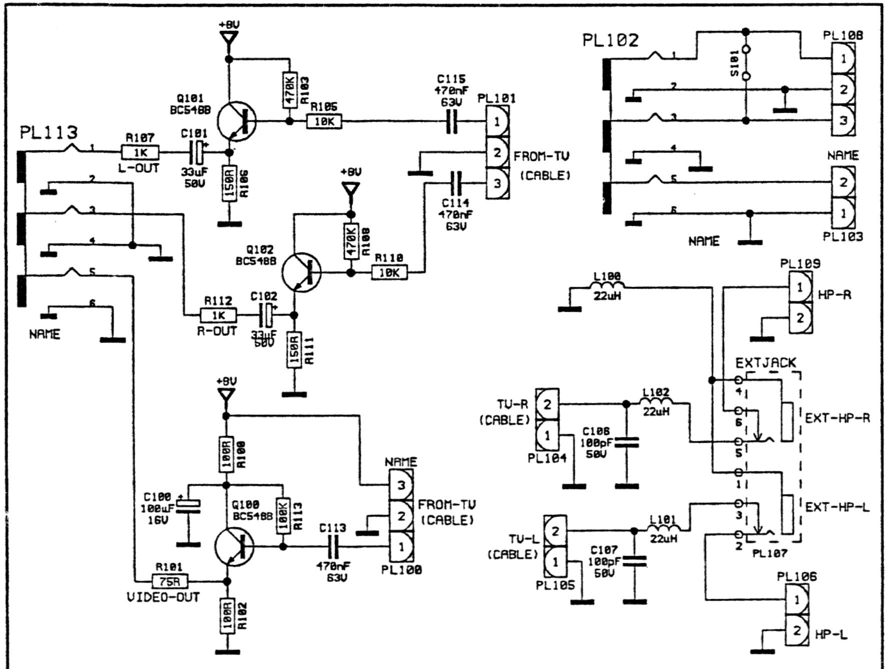
POZ.NO	VESCOD	DESCRIPTION
C373	3081010356	CAPEL100UF16VM
C374	3081010356	CAP EL 100UF 16V M
C426	3081010456	CAP EL 100UF 25V M
C848	3081010456	CAP EL 100UF 25V M
C612	3081011054	CAP EL 100UF 63V M
C702	3081011054	CAP EL 100UF 63V M
C817	3081020354	CAPEL1000UF16VM
C820	3081020354	CAPEL1000UP16VM
C828	3081020354	CAPEL1000UF 16V M
C632	3081020454	CAP EL 1000UF 25V M
C335	3081090856	CAPEL1UF50VM
C375	3081090856	CAPEL1UF50VM
C431	3081090856	CAPEL1UF50VM
C516	3082200856	CAP EL 22UF 50V M
C413	3082210356	CAPEL220UF16VM
C814	3082210356	CAPEL220UF16VM
C845	3082210356	CAPEL220UF16VM
C847	3082210356	CAPEL220UF16VM
C823	3082220454	CAPEL2200UF25VM
C826	3082220454	CAPEL2200UF25VM
C308	3082290856	CAPEL2.2UF50VM
C309	3082290856	CAP EL 2.2UF 50V M
C310	3082290856	CAPEL2.2UF50VM
C311	3082290856	CAPEL2.2UF50VM
C347	3082290856	CAPEL2.2UF50VM
C348	3082290856	CAPEL2.2UF50VM
C364	3082290856	CAP EL 2.2UF 50V M
C365	3082290856	CAP EL 2.2UF 50V M
C407	3082290856	CAP EL 2.2UF 50V M
C437	3082290856	CAPEL2.2UF50VM
C101	3083300856	CAP EL 33UF 50V M
C102	3083300856	CAP EL 33UF 50V M
C330	3083300856	CAP EL 33UF 50V M
C449	3083300856	CAP EL 33UF 50V M
C601	3083300856	CAP EL 33UF 50V M
C606	3083301354	CAP EL 33UF 160V M
C500	3083390856	CAPEL3.3UF50VM
C618	3083391356	CAP EL 3.3UF 160V M
C201	3084700856	CAPEL47UF50VM
C301	3084700856	CAP EL 47UF 50V M
C307	3084700856	CAP EL 47UF 50V M
C312	3084700856	CAPEL47UF50VM
C315	3084700856	CAPEL47UF50VM
C505	3084700856	CAP EL 47UF 50V M
C829	3084701358	CAP EL 47UF 160V M (HR)
C607	3084710354	CAPEL470UF16VM
C114	3084710854	CAPEL470UF50VM
C115	3084710854	CAP EL 470UF 50V M
C813	3084720354	CAPEL4700UF16VM
C340	3084790856	CAPEL4.7UF50VM
C432	3084790856	CAPEL4.7UF50VM
C804	3101511955	CAPEL150UF400VM
C846	3201021156	CAPCER1NF1KVMB
C850	3201021156	CAPCER1NF1KVMB
C851	3201021156	CAPCER1NF1KVMB
C852	3201021156	CAPCER1NF1KVMB
C903	3201024148	CAPCER1NF2KVKB
C860	3202227458	CAP CER 2.2NF 4KV M
C821	3204711146	CAP CER 470PF 1KV KB
C824	3204711146	CAP CER 470PF 1KV KB
C827	3204711146	CAP CER 470PF 1KV KB
R332	3311211030	RES SMD 1/10W120R J (0805)
R587	3311220437	RESCF1/4W1.2KJ
R901	3311520237	RESCF1/2W1.5KJ
R902	3311520237	RESCF1/2W1.5KJ
R903	3311520237	RESCF1/2W1.5KJ
R905	3311520237	RESCF1/2W1.5KJ
R906	3311520237	RESCF1/2W1.5KJ
R816	3311550237	RES CF 1/2W 1.5M J (400V)
R860	3312250237	RES CF 1/2W 2.2M J (400V)
R457	3312251030	RES SMD 1/10W 2.2M J
R620	3351020237	RES MO 1/2W 1K J
R630	3351020237	RES MO 1/2W 1K J
R610	3352222137	RES MO 2W 2.2K J
R806	3352232137	RES MO 2W 22K J
R822	3352233137	RES MO 22K 3W J
R870	3353381134	RES MO 1W 0.33R J
R704	3361010437	RES FUSE 1/4W100RJ
R611	3361091137	RES FUSE 1 W 1 R J
R628	3362700237	RES FUSE 1/2W 27RJ
R845	3374750237	RES MG 1/2W 4.7M J
R817	3382295130	RES WW 5W 2.2R J RAD.
TH801	3391803000	THERM.PTC DEGAUSS DUAL **250V**
LD501	3519029300	LED RED/GREEN L.TL293SJ
0301	3520501350	DIODE VARBB135
D201	3531941480	DIODE 1N4148

POZ.NO	VESKOD	DESCRIPTION
C517	3081000856	CAPEL10UF50VM
C570	3081000856	CAPEL10UF50VM
C560	3081000856	CAPEL10UF50VM
C625	3081001454	CAPEL10UF250VM
C902	3081001454	CAPEL10UF250VM
C02S	3081010356	CAPEL100UF16VM
C100	3081010356	CAPEL100UF16VM
C336	3081010356	CAPEL100UP16VM
D509	3531941480	OIODE1N4148
0510	3531941480	OIOOE1N4148
0602	3531941480	OIOOE1N4148
0603	3531941480	OIODE1N4148
0607	3531941480	DIODE 1N4148
0608	3531941480	DIODE 1N4148
0701	3531941480	DIODE 1N4148
0823	3531941480	DIODE 1N4148
0816	3551500261	DIODE BYM26D
0814	3551500953	DIODE BYW95A
0815	3551500953	DIODE BYW95A
0811	3551900331	DIODE BYD33D
0812	3551900331	DIODE BYD33D
0813	3551900331	DIODE BYD33D
0605	3551901570	DIODE BA157
0606	3551901570	DIODE BA157
0609	3551901570	DIODE BA157
0601	3551901590	DIODE BA159
0805	3551901590	DIODE BA159
0807	3551901590	DIODE BA159
0818	3551901590	010DEBA159
0826	3551901590	DIODE BA159
0827	3551901590	DIODE BA159
0801	3551940070	DIODE 1N4007
D802	3551940070	DIODE 1N4007
0803	3551940070	DIODE 1N4007
0804	3551940070	DIODE 1N4007
0901	3551940070	DIODE 1N4007
0902	3551940070	DIODE 1N4007
0903	3551940070	DIODE 1N4007
0408	3570008200	DIODE 2ENER **8.2V**
0819	3570011000	DIODE ZENER11V
0505	3571903600	DIODE ZENER 3.6V 2PD
0604	3571933000	DIODE 2ENER 33V U2T 33B
Q810	3610902260	TRMCR22-6
Q802	3610936000	TR MTP3N60E
Q303	3611502400	TR BF240
0604	3611506390	TR **BC639**
0605	3611525060	TR 2506DF
IC303	3620040530	1C HEF4053BP (MN4053B)
IC807	3620078050	ICLM78M05BIG
IC802	3620946040	1C MC44604P
IC805	3620978080	1CLM7808
IC801	3621100800	1C CQY80NG (OPT.COUPLER)
Q809	3621104310	1C TL431
IC305	3621513080	ICTDA1308
IC100	3621526150	ICTDA2615
1C901	3621561070	ICTDA6107Q/N1C
1C701	3621583560	1C TDA8356
IC401	3621588420	1C TDA8842
IC302	3621598180	ICTDA9818
IC301	3621598750	1C TDA9875
	3621624080	1C ST24C08
IC050	3621664150	ICTEA6415C
	3621678050	1C L7805CV SGS
IC501	3621852551	**1C** SDA5255 (AK19) **PLL/ATS**
	3622408000	IC24C08001155B10011510200
M0501	3660536000	PREAMPLIFIER TFMS5360
2300	3750239530	FILTER SAW OFWK3953M
Z401	3750239530	FILTER SAW OFWK3953M
Z301	3750294540	FILTER SAW L9454
2209	3780105500	FILTER SER **TRAP** TPS **5.5MH2**
	3807250050	FUSE 2.5A 250V 5-20MM
X301	3840124510	XTAL 24.576MH2
X401	3840144310	XTAL 4.433619 MH2
X501	3840418020	REZ18MH2
PL100	3861200204	CONN.MALE **2P (2052) GRAY**
PL101	3861200206	CONN.MALE (2052) BLACK
PL056	3861200211	CONN.MALE 2P (2052) BLUE
PL058	3861200301	CONN.MALE 3P (2003) GRAY
PL059	3861200303	CONN.MALE 3P (2003) BLUE
PL303	3861200307	CONN.MALE 3P(2703) RED
PL304	3861200308	CONN MALE 3P(2703) GREEN
PL304	3861200308	CONN MALE 3P(2703) GREEN
PL050	3861200501	CONN.MALE 5P (2005)
PL801	3861500200	CONN.MALE 2PMOLEX
	3861500201	CONN.FEMALE 2P MLX
PL403	3861501201	CONN.MALE 12PMOLEX
PL301	3861501202	CONN.FEMALE 12PMOLEX

POZ.NO	VESCOD	DESCRIPTION
D302	3531941480	DIODE 1N4148
D303	3531941480	DIODE 1N4148
D420	3531941480	DIODE 1N4148
0503	3531941480	DIODE 1N4148
0504	3531941480	DIODE 1N4148
0506	3531941480	DIOOE 1N4148
0507	3531941480	D100E 1N4148
0508	3531941480	OIODE1N4148
PL404	3861501401	CONN.MALE 14P MOLEX
PL302	3861501402	CONN.FEMALE 14P MOLEX
PL601	3861820406	HRZVRTCONN.(4P)
PL900	3862021001	SOCKET CRT NARROWNECK W/GND
SC050	3862050004	SOCKET SCART (R)
SC051	3862050004	SOCKET SCART (R)
PL113	3863010315	JACK RCA 3P (BACK AV) 180a
PL1204	3863011021	RCA JACK 1P WHITE (180e)
PL1205	3863011022	RCA JACK 1P RED (180B)
PL1203	3863011023	RCA JACK 1P YELLOW (1800)
PL102	3863120300	JACK HEAOPHONE STEREO WO/SW
TU201	3924224317	TUNER WSP (PLL) 38.9 MK2
	3962112128	CRT 21/VCL A51 EFS83X191
	3970801505	SPEAKER 8R15W (77-128)
L309	4010000025	FERRITE BEAD (0805) BLM21B201S
L306	4010000032	FERRITE BEAT (805) BLM21A601S
L307	4010000032	FERRITE BEAT (805) BLM21A601S
L201	4011104512	FIXEO COIL 1UH 045 M-A
L312	4011104512	FIXEO COIL 1UH 045 M-A
L801	4011225511	FIXED COIL 2.2UH 055 M-AX
L301	4011336522	FIXED COIL 3.3UH 065 K
L402	4011336522	FIXED COIL 3.3UH 065 K
L302	4011477022	FIXED COIL 4.7UH Q70 K-A
L303	4011477022	FIXED COIL 4.7UH Q70 K-A
L304	4011477022	FIXED COIL 4.7UH 070 K-A
L305	4011477022	FIXED COIL 4.7UH Q70 K-A
L501	40^1685026	FIXED COIL 6.8UHKRAD
L403	4011687522	FIXED COIL6.8UH Q75 K
L405	4012106522	FIXED COIL 10UH 065 K-A
L406	4012106522	FIXED COIL 10UH 065 K-A
L407	4012106522	FIXED COIL 10UH 065 K-A
L502	4012106522	FIXED COIL 10UH 065 K-A
L503	4012106522	FIXED COIL 10UH 065 K-A
L101	4012224022	FIXED COIL 22UH 040 K
L102	4012224022	FIXED COIL 22UH 040 K
L803	4013150017	COIL CHOKE 150UH 0.82A RAD
L050	4013155022	FIXED COIL 150UH 050 K (RAD)
L051	4013155022	FIXED COIL 150UH 050 K (RAD)
LT401	4020150002	ADJ COIL 150NH 050
LT301	4020251002	ADJ COIL 251NH 050
TR602	4030001909	TRFFBT90a(AK19)
TR802	4041804900	TRF SMPS AK19 90e (170-270V)
TR601	4050001902	LINE DRIVER NEW TYPE
TR801	4060001100	LINE FILTER 2-27MH
	4072109011	DEGAUSS COIL&EARTH CABLE (21)
L603	4090109000	LINEARITY COIL 50UH (06-06A)
SW801	4390122000	SWITCH ON/OFF PANASONIC
SW501	4390407100	SWITCH TACT SKHHLU
SW502	4390407100	SWITCH TACT SKHHLU
SW503	4390407100	SWITCH TACT SKHHLU
SW504	4390407100	SWITCH TACT SKHHLU
PL100	4930250300	CONN.ASSY.3/25 SHIELD BLUE CON
PL101	4930250301	CONN.ASSY.3/25 SHIELD GRAY CON
	4930280300	CONN.ASSY.3/28 SHIELD BLUE CON
	4930280301	CONN.ASSY.3/28 SHIELD GREY CON
	4930450400	CABLE 4/45 PC (FLAMAN) WO/SOC
	4930450401	CONN.ASSY.4/45 R26 (HRZ&VER)
	4930450502	CABLE 5/45FC (RGB AK19) WO/SOC
	4930500204	CON.ASSY.2/50 R2.6 SPK/(R)
	4930500215	CONN.ASSY.2/50 W/BLK SPK/(L)
PL1201	4930550202	CONN.ASSY.2/55 W/SHIELD BLUE
PL101	4930550301	CONN.3/55 W/RED (HEADPHONE)
PL1202	4930550302	CONN.ASSY.3/55 W/SHIELD GREEN
	4941412415	POWER CORD ASSY.(2.4MT W/FTZ)
	5124030022	BRACKET HP XX55/65 7282/92(19)
	5127025023	SHIELD AK19 SIDE
	5127025024	SHIELD AK19 (TOP)
	5127025026	SHIELD AK19 (BOTTOM W/PVC)
	5326065097	HEATSINK 16/19-REGULATOR(2)
	5326065150	HEATSINK 19-CRT BOARD
	5326065156	HEATSINK 19-REG&AUDIO
	5326065157	HEATSINK 19-HOR&VER BACKAV 90-
	5326065159	HEATSINK 19-PRIMER90'
F801	5357055001	FUSE HOLDER TK79-A
	5501035023	HEATSINK BRACKET
	5501035024	BRACKET HEATSINK BACK AVAK19


IC301
TDA9875
IC302
TDA9817
IC303
HEF4053B
IC305
TDA1308
VIF-PLL QSS DEMOD.
IF1
IF
Z301
L1301
VIF-COIL
X301
24.576MHz
QSS
MAIN_OUT_R
MAIN_OUT_L
SC2_OUT_R
SC2_OUT_L
SC1_OUT_R
SC1_OUT_L
SC1_O_R
SC1_O_L
SC1_O_RIGHT
SC1_O_LEFT
SC2_IN_R
SC2_IN_L
SC1_IN_R
SC1_IN_L
FRONT_R_IN_L
FRONT_R_IN_R
PL304
SDA
SCL
MOD_SW
INTCAR.S
+5V
+8V
+5VA
PL301
SC1_IN_L
SC1_OUT_L
SC1_IN_R
SC1_OUT_R
MOD_SW
GND
+5V
INTCAR.S
L_ACC
GND
IF
IF1
PL302
-14V_A
+14V_A
GND
MAIN_OUT_L
MAIN_OUT_R
SC2_IN_L
SC2_IN_R
+8V
SC2_OUT_R
SC2_OUT_L
GND
SCL
SDA
MOD_SW
HEAD_OUT_L
HEAD_OUT_R
PL303

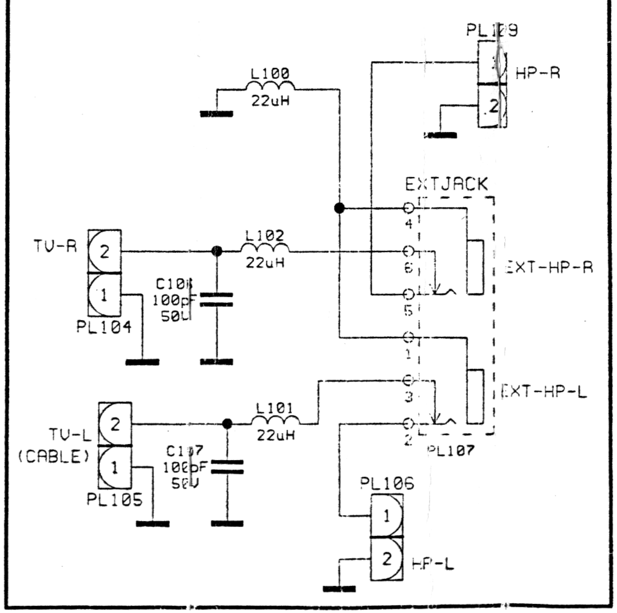
GERMAN & NICAM STEREO MODULE 11ST19

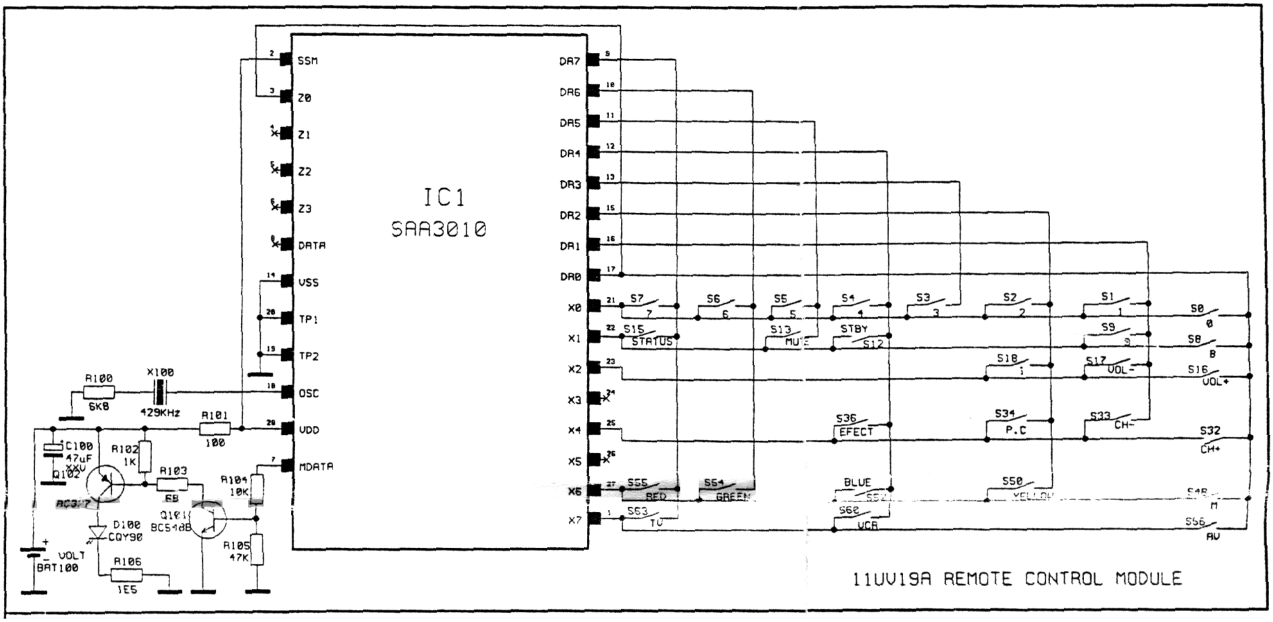

+8V
Q101
BC548B
470K R103
R105 10K
C115 470nF 63V
PL101
1
2
3
FROM-TV (CABLE)
PL113
R107 1K
L-OUT
C101 33uF 50V
150R R106
+8V
470K R108
Q102
BC548B
R110 10K
C114 470nF 63V
R112 1K
R-OUT
C102 33uF 50V
150R R111
NAME
+8V
100R R100
C100 100uF 16V
Q100
BC548B
100K R113
C113 470nF 63V
R101 75R
VIDEO-OUT
100R R102
NAME
FROM-TV (CABLE)
PL100
PL102
S101
PL108
NAME
PL103
NAME
L100 22uH
PL109
HP-R
EXTJACK
EXT-HP-R
EXT-HP-L
TV-R (CABLE)
PL104
C106 100pF 50V
L102 22uH
TV-L (CABLE)
PL105
C107 100pF 50V
L101 22uH
PL107
PL106
HP-L

11BAV192 AUDIO/VIDEO IN/OUT & SPEAKERS OUT MODULE FOR STEREO APL.

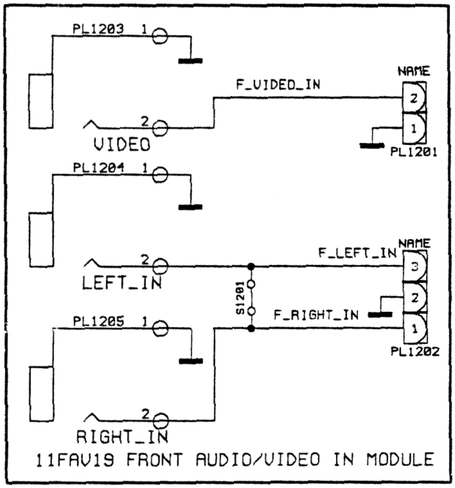
11ESP19

11AK19 EXTERNAL SPEAKER PCB

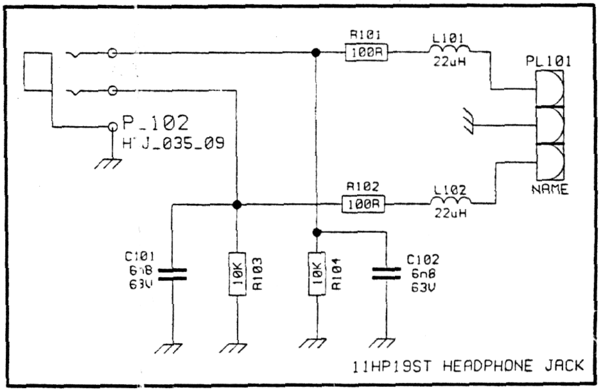

PL109
HP-R
L100 22uH
EXTJACK
TV-R
PL104
C106 100pF 50V
L102 22uH
EXT-HP-R
EXT-HP-L
TV-L (CABLE)
PL105
C107 100pF 50V
L101 22uH
PL107
PL106
HP-L


IC1
SAA3010
SSM
Z0
Z1
Z2
Z3
DATA
VSS
TP1
TP2
OSC
VDD
MDATA
DR7
DR6
DR5
DR4
DR3
DR2
DR1
DR0
X0
X1
X2
X3
X4
X5
X6
X7
S7 7
S6 6
S5 5
S4 4
S3 3
S2 2
S1 1
S0 0
S15 STATUS
S13 MUTE
STBY S12
S9 9
S8 8
S18 ;
S17 VOL-
S16 VOL+
S36 EFECT
S34 P.C
S33 CH-
S32 CH+
S55 RED
S54 GREEN
BLUE S57
S50 YELLOW
S48 M
S53 TV
S60 VCR
S56 AV
R100 6K8
X100 429KHz
R101 100
C100 47uF XXV
Q102 BC327
R102 1K
R103 68
R104 10K
Q101 BC548B
R105 47K
D100 CQY90
VOLT
BAT100
R106 1E5

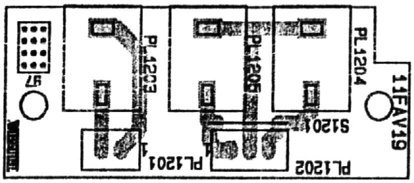
11UV19A REMOTE CONTROL MODULE

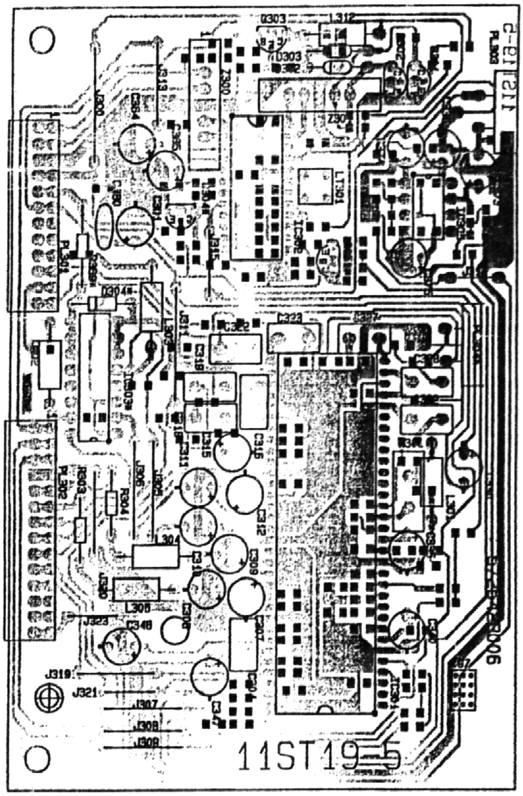

PL1203
VIDEO
F_VIDEO_IN
NAME
PL1201
PL1204
LEFT_IN
F_LEFT_IN
NAME
S1201
F_RIGHT_IN
PL1202
PL1205
RIGHT_IN

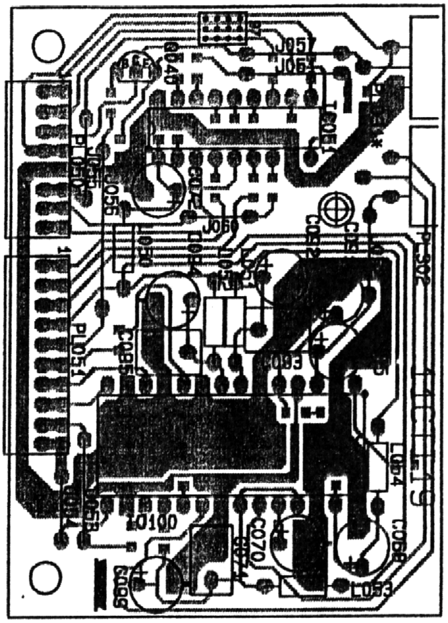
11FAV19 FRONT AUDIO/VIDEO IN MODULE

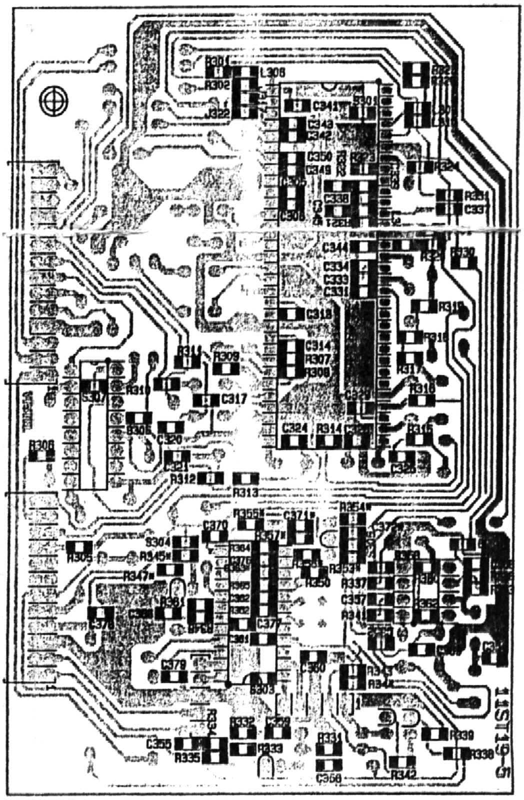

P_102
HTJ_035_09
R101 100R
L101 22uH
PL101
NAME
R102 100R
L102 22uH
C101 6n8 63V
R103 10K
R104 10K
C102 6n8 63V

11HP19ST HEADPHONE JACK


11FAV19
PL1203
PL1205
PL1204
S1201
PL1201
PL1202
P7


11ST19-5
D303
L312
Z300
Z301
LT301
PL301
PL303
PL305
C323
C322
L304
L306
J319
J321
J307
J308
J309
J323
C348
P7


PL051
PL050
PL307
J057
J062
J056
J060
C052
C085
C093
IC051
IC100
C070
C068
L053
L054


11ST19-5
R301
R302
L308
J322
C341
C343
C342
C350
C349
C338
C344
C334
C333
C331
C315
C314
R307
R308
R311
R309
R310
C317
R306
C320
C321
C324
R314
R312
R313
R354
C370
R355
C374
S304
R305
R345
R347
C378
C379
R303
R334
R332
C359
C355
R335
R333
R331
C358
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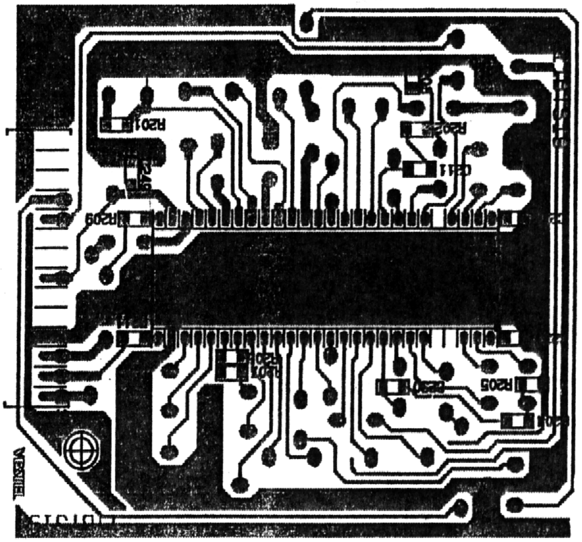
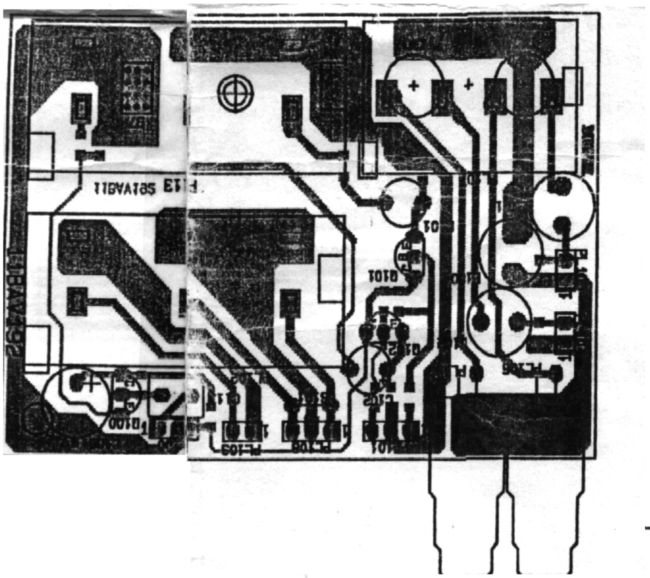
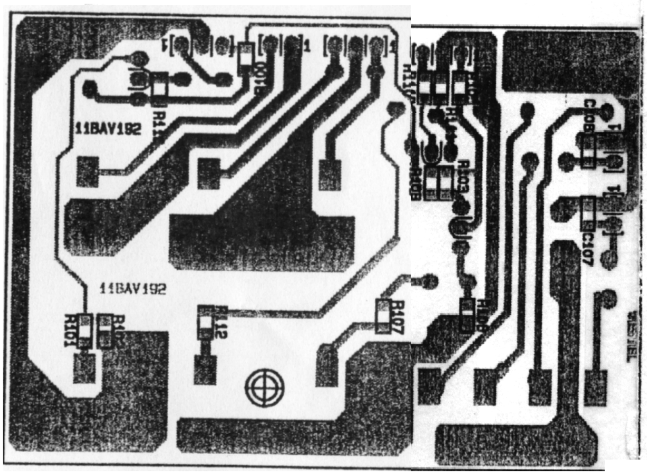
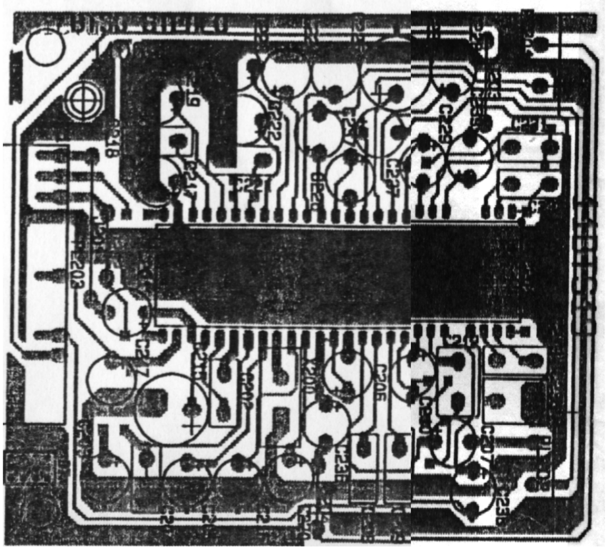
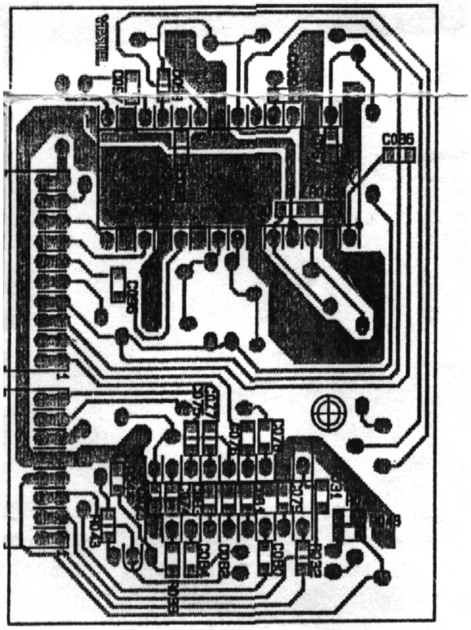
R330
R319
R318
R317
R316
C326
R337
R341

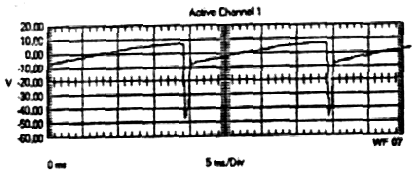

R201
R202
C211
R209
R205
VESTEL

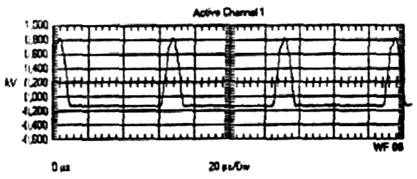

11BAV192

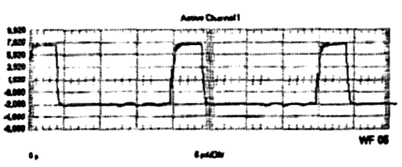

11BAV192
11BAV192
R101
R112
R107
C107

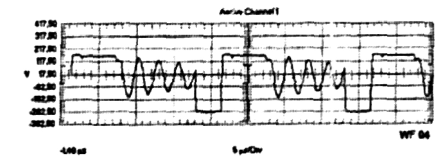

C206
C207

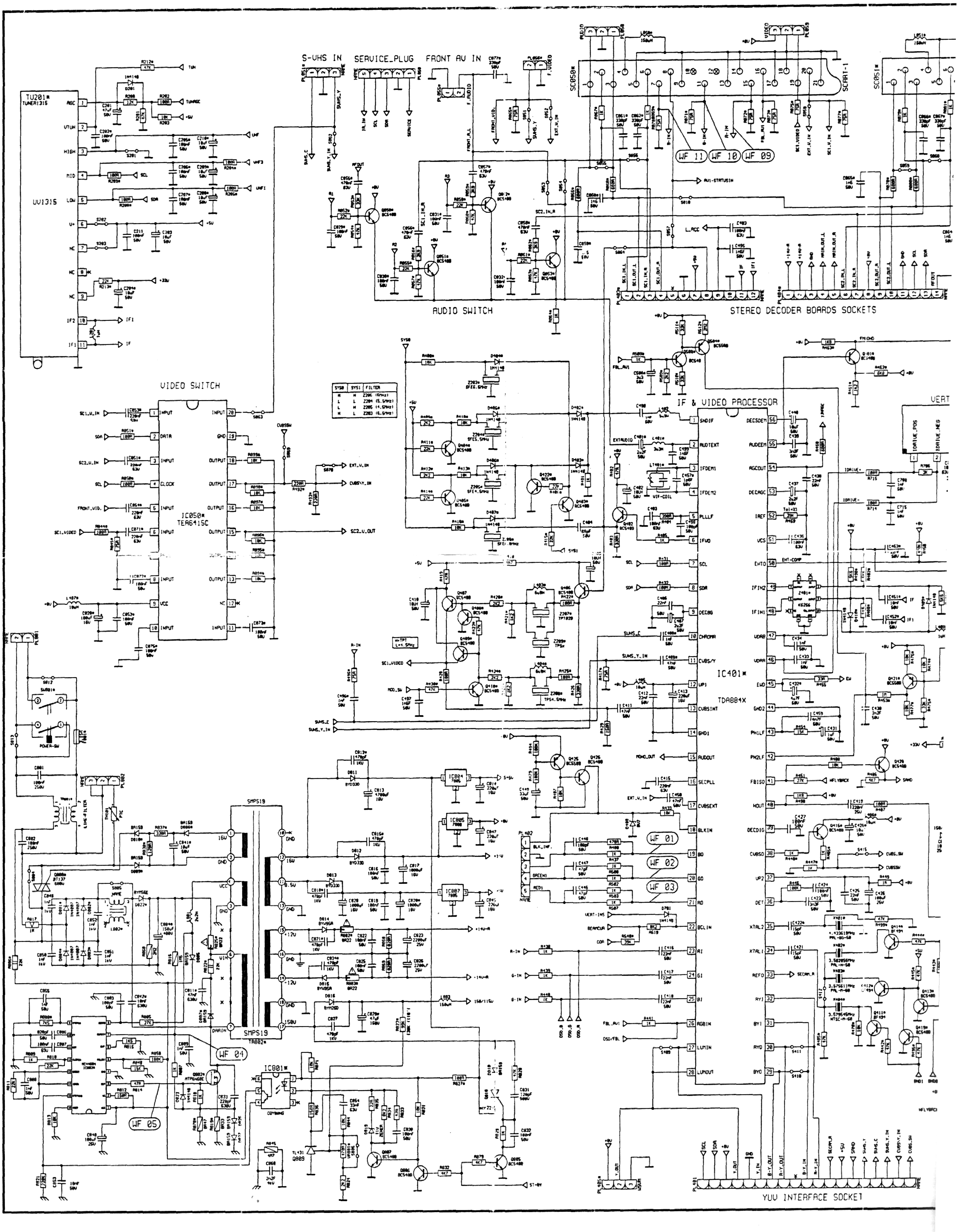

C086

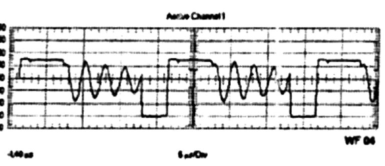

Active Channel 1
WF 07
5 ms/Div


Active Channel 1
WF 08
20 µs/Div

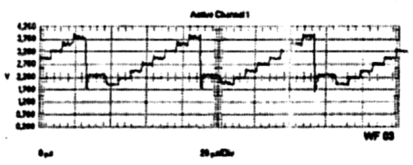

Active Channel 1
WF 05


Active Channel 1
WF 04

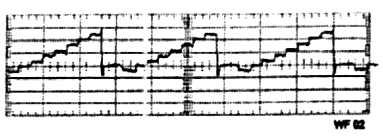

TU201
TUNER1315
UV1315
S-VHS IN
SERVICE_PLUG
FRONT AV IN
SCART-1
SC050
SC051
AUDIO SWITCH
STEREO DECODER BOARDS SOCKETS
VIDEO SWITCH
IC050
TEA6415C
IF & VIDEO PROCESSOR
IC401
TDA884X
SMPS19
TR802
IC801
CQY80NG
POWER-SW
LINE-FILTER
WF 01
WF 02
WF 03
WF 04
WF 05
WF 09
WF 10
WF 11
YUV INTERFACE SOCKET
VERT

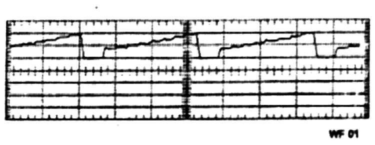


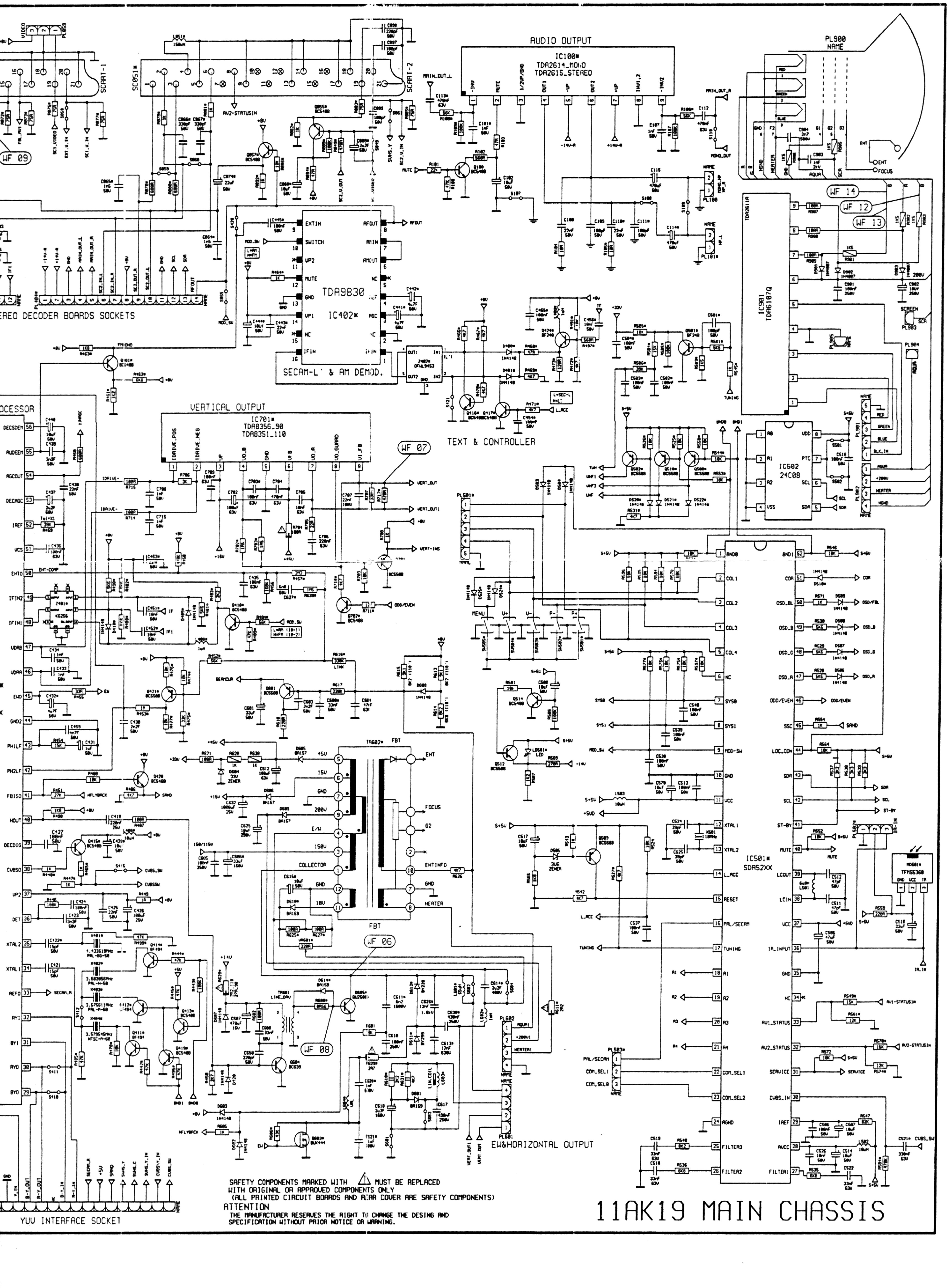
WF 04



WF 03


WF 02


WF 01

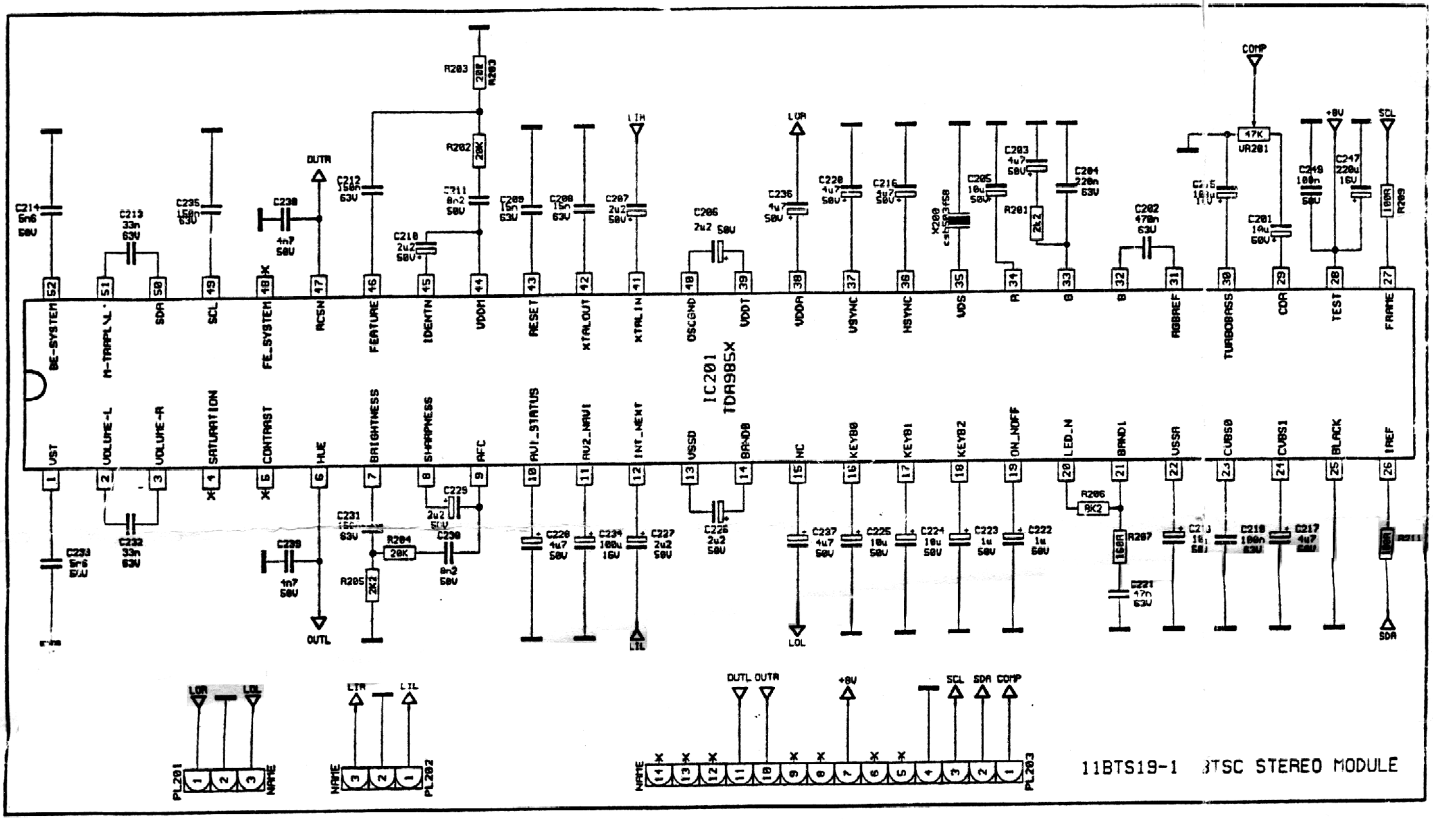

SCART-1
SCART-2
SC051
AUDIO OUTPUT
IC100
TDA2614_MONO
TDA2615_STEREO
PL900
NAME
TDA9830
IC402
SECAM-L' & AM DEMOD.
STEREO DECODER BOARDS SOCKETS
PROCESSOR
VERTICAL OUTPUT
IC701
TDA8356_90
TDA8351_110
TEXT & CONTROLLER
IC901
TDA6107Q
IC502
24C08
IC501
SDA52XX
TR602 FBT
EW&HORIZONTAL OUTPUT
YUV INTERFACE SOCKET
WF 09
WF 07
WF 06
WF 08
WF 12
WF 13
WF 14

SAFETY COMPONENTS MARKED WITH ⚠ MUST BE REPLACED WITH ORIGINAL OR APPROVED COMPONENTS ONLY
(ALL PRINTED CIRCUIT BOARDS AND REAR COVER ARE SAFETY COMPONENTS)

ATTENTION

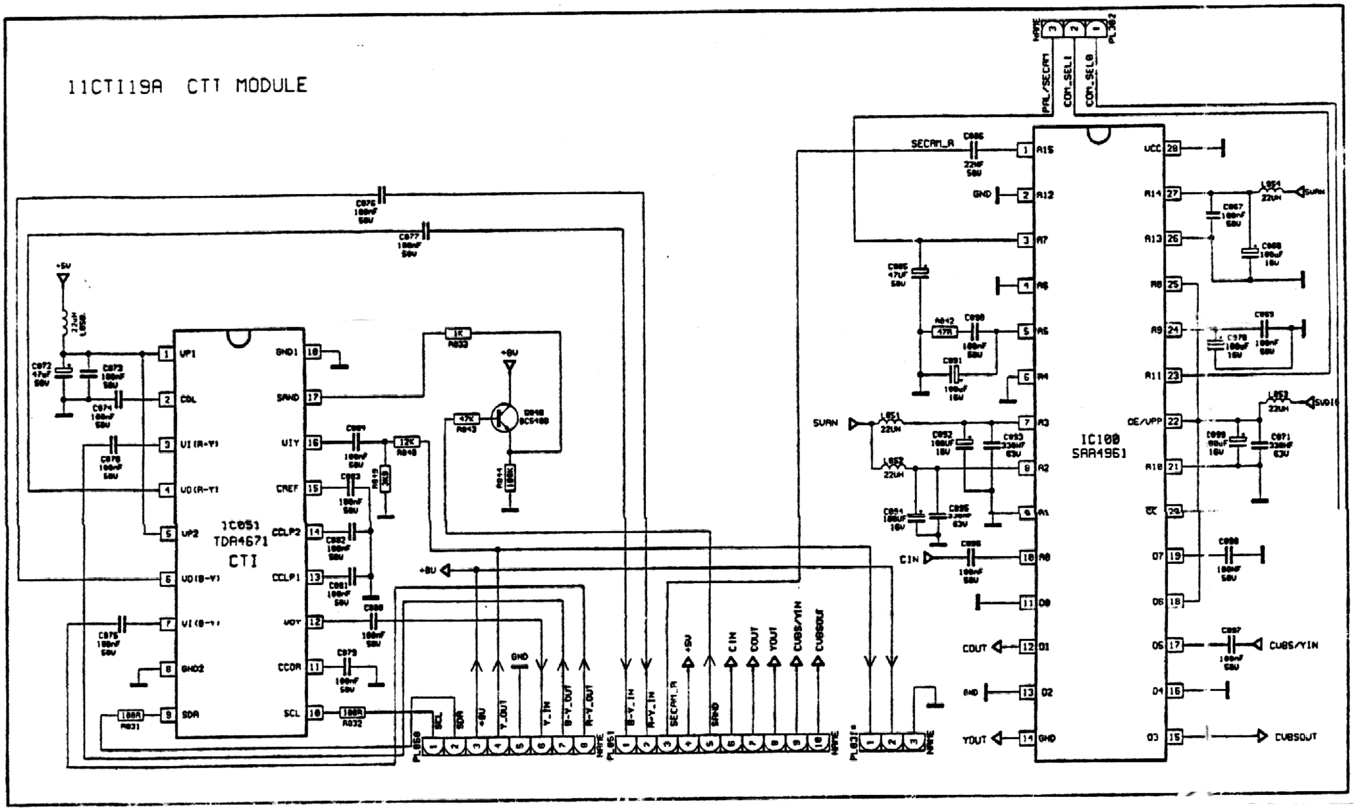
THE MANUFACTURER RESERVES THE RIGHT TO CHANGE THE DESING AND SPECIFICATION WITHOUT PRIOR NOTICE OR WARNING.

11AK19 MAIN CHASSIS



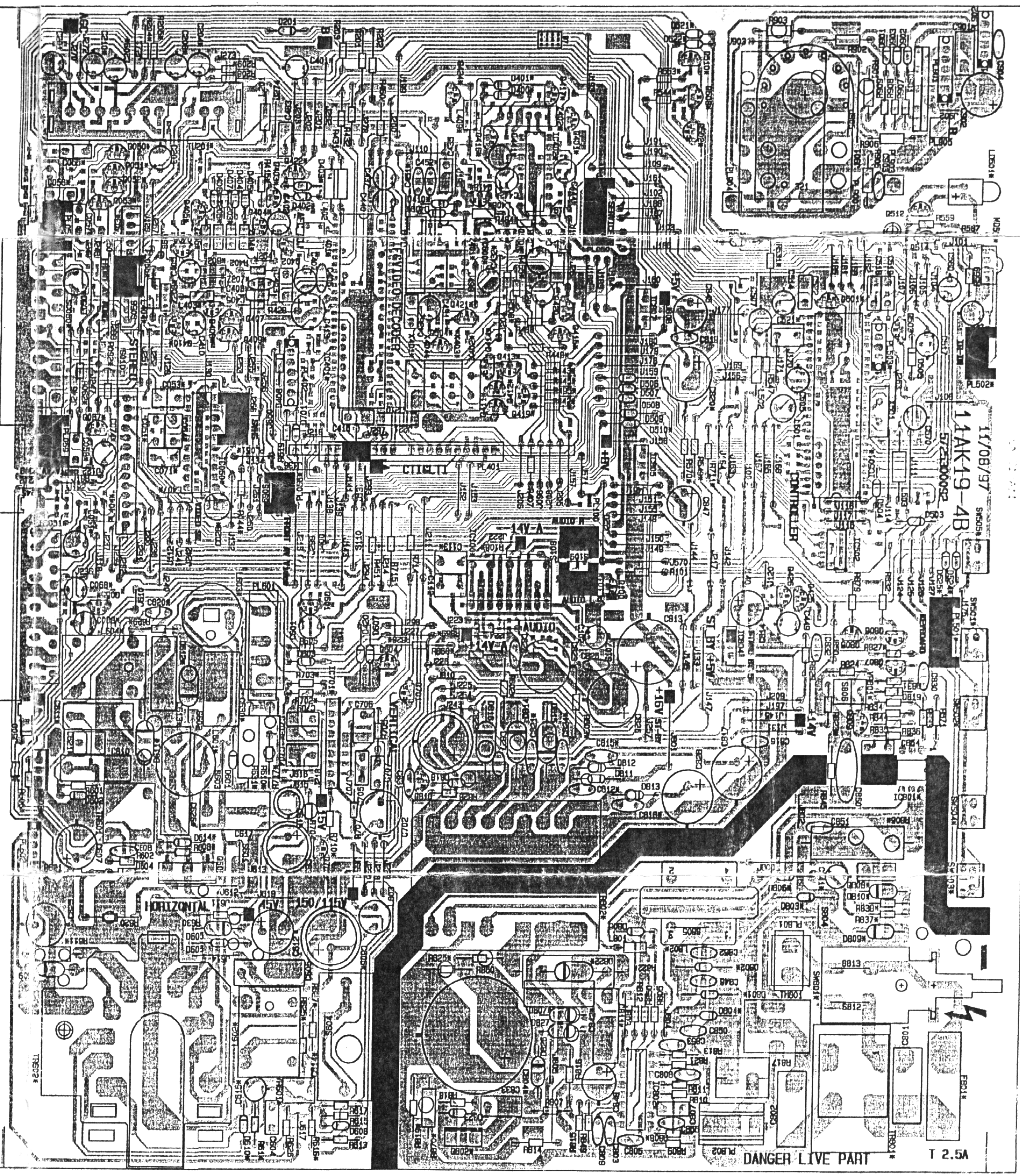
11BTS19-1 BTSC STEREO MODULE

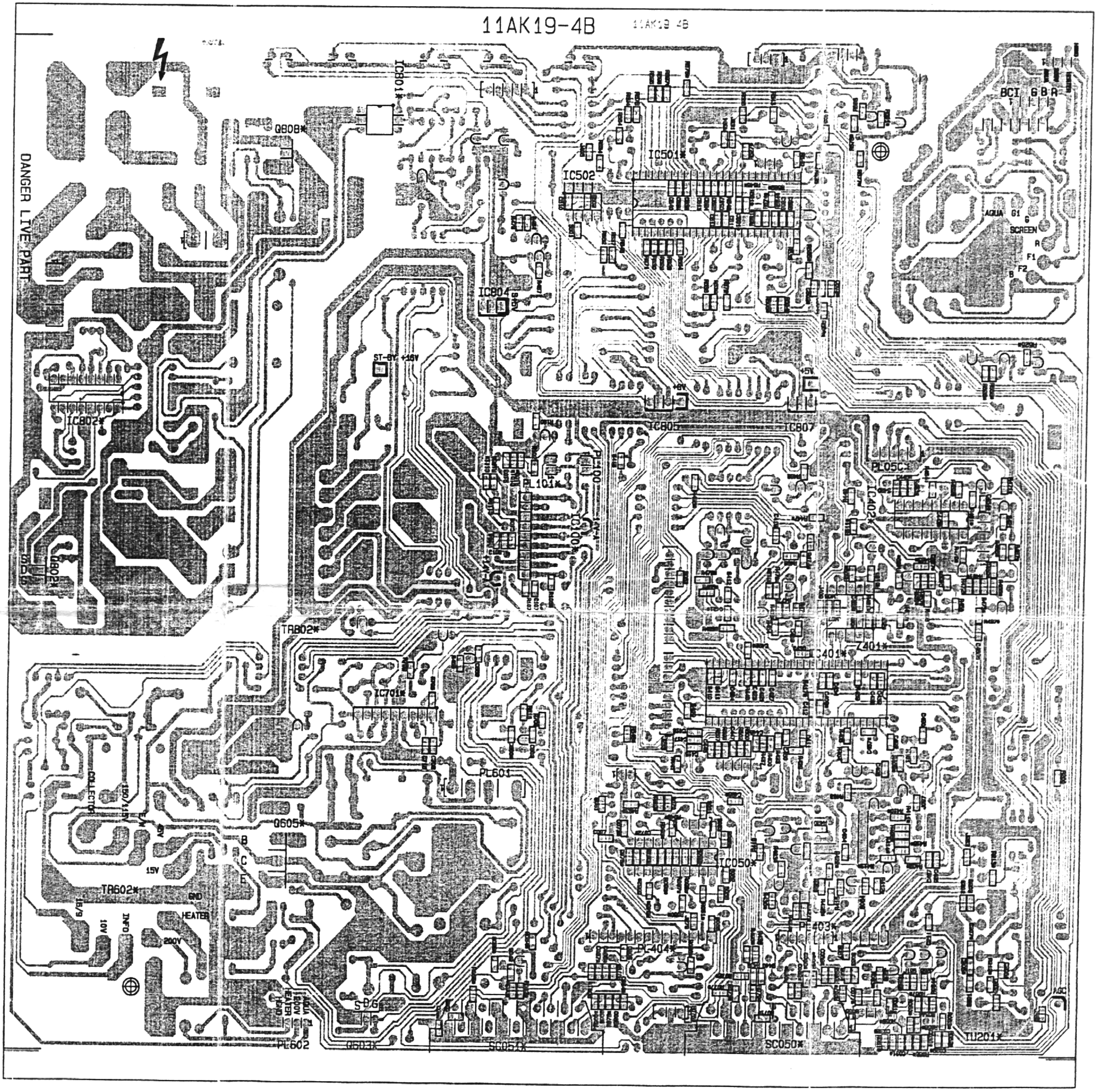
IC201
TDA985SX
BE-SYSTEM
M-TRAPL
SDA
SCL
FE_SYSTEM
ACSN
FEATURE
IDENTN
VDDM
RESET
XTALOUT
XTALIN
OSCGND
VDDT
VDDA
VSYNC
HSYNC
VDS
R
G
B
RGBREF
TURBOBASS
CDR
TEST
FRAME
VST
VOLUME-L
VOLUME-R
SATURATION
CONTRAST
HUE
BRIGHTNESS
SHARPNESS
AFC
AVI_STATUS
AV2_NAVI
INT_NEXT
VSSD
BAND0
NC
KEYB0
KEYB1
KEYB2
ON_NOFF
LED_N
BAND1
VSSA
CVBS0
CVBS1
BLACK
IREF
R203 20K
R202 20K
R201 2K2
R204 20K
R205 2K2
R206 9K2
R207 160R
R209 100R
R211
VR201 47K
X200
C214 5n6 50V
C213 33n 63V
C235 150n 63V
C238 4n7 50V
C212 150n 63V
C218 2u2 50V
C211 8n2 50V
C209 15n 63V
C208 15n 63V
C207 2u2 50V
C206 2u2 50V
C236 4u7 50V
C228 4u7 50V
C216 4u7 50V
C205 10u 50V
C203 4u7 50V
C204 220n 63V
C202 470n 63V
C215 10u
C249 100n 50V
C201 10u 50V
C247 220u 16V
C233 5n6 50V
C232 33n 63V
C239 4n7 50V
C231 150n 63V
C229 2u2 50V
C230 8n2 50V
C220 4u7 50V
C234 100u 16V
C227 2u2 50V
C226 2u2 50V
C237 4u7 50V
C225 10u 50V
C224 10u 50V
C223 1u 50V
C222 1u 50V
C221 47n 63V
C219 10u 50V
C210 100n 63V
C217 4u7 50V
COMP
+8V
SCL
SDA
LIH
LOR
LOL
LIL
OUTR
OUTL
PL201
PL202
PL203
NAME



11CTI19A CTI MODULE

IC051
TDA4671
CTI
VP1
COL
VI(R-Y)
VO(R-Y)
VP2
VO(B-Y)
VI(B-Y)
GND2
SDA
GND1
SAND
VIY
CREF
CCLP2
CCLP1
VOY
CCOR
SCL
IC100
SAA4961
A15
A12
A7
A6
A5
A4
A3
A2
A1
A0
D0
D1
D2
GND
VCC
A14
A13
A8
A9
A11
OE/VPP
A10
CE
D7
D6
D5
D4
D3
SECAM_R
SVAN
SVDI
CIN
COUT
YOUT
CVBS/YIN
CVBSOUT
PAL/SECAM
COM_SEL1
COM_SEL0
+5V
+8V
T040 BC548B
R033 1K
R043 47K
R044 100K
R040 12K
R042 47K
R031 100R
R032 100R
L050 22uH
L051 22uH
L052 22uH
L053 22uH
L054 22uH
C072 47uF 50V
C073 100nF 50V
C074 100nF 50V
C075 100nF 50V
C076 100nF 50V
C077 100nF 50V
C078 100nF 50V
C079 100nF 50V
C080 100nF 50V
C081 100nF 50V
C082 100nF 50V
C083 100nF 50V
C084 100nF 50V
C085 47uF 50V
C086 22nF 50V
C087 100nF 50V
C088 100nF 50V
C089 100nF 50V
C090 100nF 50V
C091 100uF 16V
C092 100uF 16V
C093 330nF 63V
C094 100uF 16V
C095 330nF 63V
C096 100nF 50V
C097 100nF 50V
C098 100nF 50V
C099 100uF 16V
C070 100uF 16V
C071 330nF 63V
PL050
PL051
PL031
SCL
SDA
+8V
Y_OUT
GND
Y_IN
B-Y_OUT
R-Y_OUT
B-Y_IN
R-Y_IN
SECAM_R
SAND
CIN
COUT
YOUT
CVBS/YIN
CVBSOUT
NAME

11AK19-4B
11/08/97
57230092
VIDEO DECODER
CONTROLLER
STEREO
CTI6LTI
AUDIO
14V-A
+5V
+8V
KEYBOARD
VERTICAL
HORIZONTAL
45V
150/115V
15V
PL401
PL502
PL601
DANGER LIVE PART
T 2.5A


11AK19-4B
DANGER LIVE PART
IC801
Q808
IC502
IC501
BCI
G B R
AQUA
G1
G
SCREEN
A
F1
F2
B
IC804
ST-BY +16V
+5V
+8V
IC805
IC807
IC802
PL100
PL101
IC100
Q802
S D G
PL05C
IC402
TR802
IC701
Z401
IC401
PL601
COLLECTOR
150/115V
EW
45V
Q605
B
C
E
15V
TR602
GND
HEATER
16/9
10V
INFO
200V
IC050
PL403
PL404
S D G
HEATER
PL602
Q603
SC051
SC050
TU201
AGC